Choosing Routes and Looking Around Carefully: Aspects of Security Management in Behavior of Nonprofessional Motorcyclists

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ABSTRACT

In Brazil, many motorcycle accidents have occurred in displacements home-work/school-meals. This study aims to understand the aspects and origins of accidents involving motorcycles used to transport. Therefore, analyzes 20 cases of nonprofessional motorcyclists that accidents occurred in 2011 in Paranavaí, Paraná State, Brazil. Consisted of semi-structured interviews, focus groups and observations at accidents locals, and analyzes were supported by concepts of Activity Ergonomics and guided by the model of analysis and prevention of work accidents. Motorcycle riding strategies were found and constitute prevention. Strategies of motorcycle conduction were found, that are to prevent, based on diachronic management, like route choice, time planning, knowledge of road and vehicle characteristics; and synchronic management, like constant vigilance, change path and attempt to be seen. Accidents occurred in a factors network, when management aspects cognitive fail. The accident, in this light, should be seen as a result of the interaction of task demands, competition between objectives, organizational factors and cognitive processes. Thus, nonprofessional riders are not crazy looking for the accident. Training activities of motorcyclists should highlight the cognitive, guiding with respect to multiple aspects in motorcycle conduction and showing the importance of synchronic and diachronic aspects, as well as their interactions.

Keywords: Accidents, Occupational; Accidents, Traffic; Motorcycles; Accident Prevention.

INTRODUCTION: The size of the problem and how to understand it

In Brazil, the motorcycle has become a very used means of transportation (Silva, Cardoso and Santos, 2010) and no more a simple work tool. Study cases have highlighted the vulnerability of its conductor once the proportion of wounded ones is greater than of those other vehicles (Koizumi,1985) , besides that the motorcyclist is pointed out as the most involved in traffic (Soares and Barros, 2006; Oliveira and Sousa, 2004) accidents.

The distribution of records of motorcycle accidents suggests a bigger frequency of nonprofessional (Koizumi, 1985; Soares and Barros, 2006; Oliveira, 2008; Andrade and Mello-Jorge, 2001; Barros et al. 2003; Pereira and Fischer, 2009) motorcyclists, which has been pointed as being associated to the increase of both vehicle flow as well as fatigue (Andrade and Mello-Jorge, 2001). If more and more motorcycles have been used as employees' transportation to commute to their jobs, and also the fact that the number of accidents at these hours is bigger, it justifies paying a greater attention and comprehension to those events.

Daily, not only the public opinion but also studies published in high conceited magazines have set the blame on the motorcycle conductor, that is, the victim, as say there would be a right velocity and route and a pre-conceived form of piloting which would avoid accidents. The "causes" of those events would be differently identified between the adopted behavior and that supposedly correct (Almeida, 2006). Thinking like that, we can easily understand the cause of the event, once the closing of the action is used as criteria for the judgment of the taken decision. This

approach, so called traditional, is also highlighted as a paradigm to the human error and it explains accidents as phenomena centered on the victim's behavior.

This way of thinking does not prevent the repetition of similar (Guérin et al. 2001) events, and enables the perpetuation of impunity of these accidents (Vilela, Iguti and Almeida, 2004). If the analysis aims to search for guilty ones, the tendency is to have only the consequences pointed out. That is what happens to the conductor, frequently said as imprudent, daring or irresponsible (Diniz, Assunção and Lima, 2005).

In the last years, there have been studies that consider the accident as a resulting phenomenon or emerging from a multiple interacting factor net, opposing to the traditional approach (Diniz, Assunção and Lima, 2005;Oliveira, 2007; Vilela, Mendes and Gonçalves, 2007; Almeida and Jackson Filho, 2007; Câmara, Assunção and Lima, 2007). As per this kind of analysis, behavior as speeding, for example, is taken as a starting point for a deep exploitation, which means, a search for the latent origins. Making a parallel to these studies the recommended procedure in the analysis is to question: Why, to the motorcycle conductor, made sense to drive that way?

In the search of the "cause of the causes" of accidents would offer basis to the picturing of the preventive interventions of a new sort. The degree of deepening into the analysis is a social construction and the upgrade in the society knowledge tends to make it acceptable choices of approaches that do not exploit the historical origins of aspects that are associated to the subjective and organizational aspects of the system.

The question that is proposed as the orientation of this study case is: which would be the multiple interacting factor net and the situations associated to the origins of accidents in work/school/ meal dwelling involving nonprofessional motorcyclists? This question carries along a comprehension that rejects the prejudicial explanation that says that the origins of those accidents would be in personality deviation of the motorcyclists that are stereotyped as "crazy looking for accident".

METHODOLOGY

Characterization and place of studies

It is a transversal and qualitative study realized in the town of Paranavaí, Paraná, that presented on July 1st ,2011, 82.039 inhabitants (IBGE, 2012) and a motorcycle crew of about 33% of the total of vehicles (15.730 motorcycles for 47.619 vehicles)(DETRAN-PR, 2011).

Data Sources and procedures

In Paranavai, when a accident happens, it is a duty of the Integrated Service of help for Trauma Emergency (SIATE) to rescue and First Aid the victims, besides taking them to the Health Care/Hospital Emergency, especially when there are victims. That is why, the choice of this source for data collecting. It has been sought the traffic accidents involving motorcycles and their victims, from Paranavaí, in 2011. From then on, there has been selected the victims of the second semester (minimizing memory vies) which happened from 7:30 to 8:30 a.m. to 1:30 and 5:30 to 7:30 p.m. Those studied time accompanied the research of Mont'Alvão Neto (2009).

The criteria used to decide how many motorcycle pilots would be interviewed was of saturation/repetition, that is, from the moment the collected data started to be repetitive and nothing new would come out, the capitation was finished. This way 20 people were heard, initially selected at random for a telephone contact and an invitation for a participation in the study out of an amount of 125 victims (40,06% of the stricken in the second semester). From the chosen ones, 15 were men and 5 women, 12 were involved in accidents type automobile x motorcycle, 3 cases motorcycle x motorcycle, 1 in a motorcycle x bicycle and 4 in motorcycle fall. It has also been taken into consideration the confirmation of the victim using the vehicle in that moment for dislocation and not being professional pilots. Following semi structured interviews were made as well as observation in the places of the accidents and focused groups.

The semi structured interviews were individually made with the motorcycle conductors, and next two more focused groups, with 10 people each. It was studied the various accidents and the anteceding moments, and it was also taken

into consideration the actions involved in the driving, the situation of the driving being habitual, the strategies and operating skills adopted, any change origin and barrier analysis. It was searched the cognitive comprehension like the planning of the conduction, decision making, aiming to view aspects that are not visible in the way that conductors act. Points were analyzed about what they think and wear apparatus to protect them before starting their conduction back and forth work, the speed adopted, the aspects of roads and traffic conditions. Observations on the places of the accidents were made analyzing: traffic signs, exits, roads and their paving conservation, traffic organization, light and the presence of barriers on the width of the road.

Analysis of data

The interpretations were under (MAPA) Work Accident Prevention Model, suggested by Almeida e Vilela (2010) who study the aspects of the process of origin of accidents. Almeida (2006) has already made reference to this kind of study that aims to consider the context, the nature of needed skills, variation and history f the usual performances executed for the task, adequacy to the present pattern of variation and also the associated psychic processes.

The analysis of changes aimed to identify contributions of changes into components (people, task, material, physical or organizational work environment) or system interactions and aspects of its origins. On the other hand, the analysis of the barrier starts by exploiting potential harms present in the system and associated barriers, that is, mechanisms through which is possible prevent (avoid) or protect (minimize consequences) from the uncontrolled mass transportation, energy or information in a given situation. The investigation is completed aiming to explain the accident as the associated matter to the lack or misused barriers and their respective origins. Barriers can be physical, functional symbolic or inmaterial (Almeida, 2006).

According to MAPA, the accident is represented by a bow tie. In it, the not wanted event (accident) is in the middle (the knot of the tie) having on its right side the immediate consequences or the following ones and, to the left the facts of close or far origins, which makes it easier to the comprehension of the accident as a phenomenon with a history to be reconstructed in the process of analysis.

The description of the conduction is based on concepts of Ergonomics and Cognitive Psychology trying to identify strategies and adopted operating ways, constraints and variations present in it as well as necessary adjustments made. The origins of the behaviors were explored taking into consideration aspects shown in the drawings and performed in the activity (Almeida and Vilela, 2010).

Ethical Consideration

This study has been approved by the Ingá University Committee of Ethics in Research under the norm 0058/11 - *Comitê de Ética em Pesquisa da Faculdade Ingá /parecer 0058/11*.

RESULTS AND DISCUSSION

Diachronic Management of Security: planning before the activity

The study reveals an association between conducting strategies chosen by the motorcyclists and the prevention of accidents in situations. Amalberti (1996) uses, among others, the notion of cognitive engagement, in which is included the idea of diachronic management – to refer to these choices.

The cognitive engagement set by the person in situation shows a negotiation among – at least, three types of objectives: The first, the fulfillment of the whole task, that is, it is necessary to arrive at the destination; the second, the safety, avoiding accidents for himself and to the system; and the third, the minimization of the human cost or the physiologic and psychic consequences of the performance. When the noted risk is beyond the acceptable boundary, the worker realizes corrective actions, aiming to reestablish equilibrium (Diniz, Assunção and Lima, 2005; Amalberti, 1996). In the model of Amalberti's[21], the diachronic prevention is due to the anticipation of risks that will now be part of the planning and chosen strategies to guide the actions. The anticipation is a dynamic construction, constantly upgraded in situation with the support of the individual or collective comprehension, over the estate of

the system. Differently from Batiz (2002) to whom one of the ways to reduce accidents is to diminish the quantity of risks that the person is willing to take, Amalberti (1996) highlights that the cognitive engagement never tends to be in excellent conditions, which means, the realized choices always imply in the operator not be working under best conditions for the performance, and the security and the costs involved in the activity. One of the dimensions may overlap the others meanwhile the possible equilibrium is obtained not demanding the ideal conditions for one or more dimensions involved.

The choice of the itinerary is an example that contains interests of performance and prevention care: *"I've chosen because of the amount of traffic lights, or else it takes too long. I'd have to stop on all of them, they are not synchronized. The way has more yields, not to stop too much. The street is faster, flows better."*

Other reasons associated to the choices reveal chosen forms due to strategies of prudence: "*I always used to go by one avenue but it had a very dangerous crossing of another avenue. It was chaos. I noticed that it was very difficult to see who was coming and it was worth changing. There often happen accidents there."*

"Now they have put some signs on the corners of those dangerous crossings. Later I saw that, I chose another route, if possible. If it is not, I go slower there."

In other statements the motorcyclists say that it is not only through the choice of the route that they try to protect themselves: *"In order to know if I should cross or not a traffic light that is almost in red, beforehand I should know better which side the traffic light will open first and when the one I am going through closes. I have memorized my itinerary home. Then, If there is nobody, or else everybody coming has no blinker on, I go through."*

We know where we can or cannot abuse. There are corners that are impossibly crazy, you cannot see a thing. Then, I don't exaggerate."

The decision making seems to be influenced by the fact of *knowing* the streets, or having used it, by the relative *knowledge* of the behavior of the traffic flow when the traffic light is on red to him. The violation of the norm reveals permissive to be preceded by the evaluation of risk in a way that the faulty behavior tends to be faced as yet under control. In this kind of situation, despite the cited care, the taken behavior pushes the system to the rim of its boundaries of safety (Rasmussen, Duncan and Leplat, 1987). In it, practices that have been successful in the past can now be seen as a warranty on a inexistent problem in the future.

The negotiation between time objectives and safety seem to show that a good performance as far as objectives are taken for granted is obtained in a situation that minimal changes or even behaviors before executed without implications to security can now, at any moment, trigger the events of incidents or accidents. The *time planning*, in special the anticipation of leaving was also mentioned: *"I try to wake up earlier, and leave far earlier. It takes me about 40 minutes to go. So, I always leave one hour before."*

The *choice of material* also counts: *"When you have a tight helmet, well fit, it not only protects you but also will not fall off your head when you fall, it will be safer for your ride."*

The fact of carrying materials on the motorcycle is also pointed as being bound to interfere in the ride and it requires certain care:*"I sometimes carry my laptop. I try to have its handle tight and well set on my back, in the middle, rested on the backseat, so it is no loose."*

The knowledge about the features of the motorcycle like types of breaks and their performance, emerge as associated to the choice of vehicle considered safer and adopted behavior, for example, when breaking it: *"It depends on the motorcycle. I had a CG. It used both breaks. Now, I got another one that has front ABS. It is much safer. I almost only use it"*.

Synchronic safety management: "we need to look around"

The necessity to evaluate the way we work (operating mode) and where we are going to look (perceptive activity), as highlighted by Wisner (1987) is also mentioned in the statements of the workers: *"We need to look around carefully, always". "When you see someone boarding a car that is parked, a slightly distracted woman is most likely*

to start moving without looking. If you are passing by her, you're darned". "I don't use horns, mainly for women. They tend to get more desperate. It is dangerous that she might get frightened and worsen the situation." A study that aimed to describe strategies and operating mode of *motor boys* has revealed that the horn was one of the most used procedures to avoid accidents, before overtaking or to call attention of pedestrians that were crossing the street without looking (Diniz, Assunção and Lima, 2005).

In this study, the horn was not a used strategy in all moments, more than that, it was used with caution and in situations in which the perception of listening could provide a positive action.

Another motorcycle driver shows a similar perception: *"I try to see people's faces, in order to know whether they have seen us or not."* The invigilation throughout action can be supported by other strategies: *"See the face is difficult. I pay attention to the movement of the car. If it is coming up a street and it slows down, I get a bit lost not knowing where it is going, I get alert." "If the car is farther to the left of the street, I go right. I stay away from it".*

Regarding the fact of a motorcycle driver being in front of a car at a traffic light: *"Everybody complains, but it means more safety to all of us. When the traffic light gets red and I am behind a car, I slowly overtake. Then I stay up front, otherwise, when the lights turn green (the car) starts out and does not worry if there is a motorcycle or not in front of it.*

The given examples correspond to what Amalberti (1996) calls Synchronic management of the activity. In it, the worker executes anticipated actions in the plan and, based on what is noticed and on the senses of what is seen or heard, mobilizes its repertory of competences, especially skills and knowledge developed by individual and collective experiences of insertion in the history of the system and of life, refreshing the strategies and adjusting operating modes in order to conduct the activity and, in especial, to deal with variation. The worry about prevention is revealed in details, being mobilized in a almost omnipresent mode.

It is in the synchronic management that decisions are made related to changes of plans such as the route chosen: *"when I see that it is a busy and complicated time to drive by that street and \I see there are too many cars, I cross the street and take an alternative route."*

How do references to law-breaking behavior show?*"If it is getting too late, and if I see that the street is too busy, I take the wrong direction street in front of work and use it as a short cut, to another street."*

Similar event is revealed in another statement: *"In my case, I speed alright. It is because I had planned at that time a trip with my family. It was long. As I don't like to travel at night, I tried to go faster so I wouldn't travel at night."*

In the first case the transgression of the norm has its origin associated to the heavy traffic constraint and it suggests priority given to the objectives of performance and prevention, once the choice aims the use of a easier route and lighter traffic. Despite that, in the first moment it includes the avoided risk initially. It seems to be a conscious decision of a kind "the smaller the problem, the better".

In the second case, the transgression also shows origins in the facing of a time constraint deriving from a family appointment associated to the effort of avoiding a psychic cost and risks of a possible night trip. This latter aspect can also be seen as an example of worrying about safety (future) by the motorcycle rider.

Restrictions imposed by liberty associated with environmental constraints and to the knowledge about the situation come about by the comparison made with bigger counties: *"And we are in Paranavai. Here we have fewer options of detours. The town is well organized, but we cannot take many shortcuts. In São Paulo, where I used to live, there are many routes to the same destination. We only have to know where we are going to."*

Other aspects can be present at the conduction: *"When it starts to rain a lot and if here are cars around, I try not to change lanes, not to be too close. If the car breaks, I have less time, because I can slide and crash."* It also emerged reasons associated to the aspect of behavior of motorcycle riders that tend to be the target of complaints of car drivers, for example, the place motorcycles should ride: *"Here in Paranavaí they are fixing the roads, which is good. But they leave behind pebbles on top of the tar that make bikes slide, as sand on top of wet floor. I pay attention and try to ride in the very middle of the road."*

This behavior seen from the outside as dangerous reveals itself as originated in prevention strategies based on the knowledge of the rider over the situation of roads and its safety implications. Apparently illogical or "crave for danger", these behaviors may reflect choices opposed to the initial one unconsciously on the motorcyclist's point of view.

The statements make the necessities capture perceptions from all around evident, "take care of everybody", thus adopting different strategies supported by the mobilization of knowledge and on the situational aspects and or behavior of other road users. Based on the senses that are given to the different findings, making decisions and even when making choices that prioritize objectives of performance we can include worry into prevention.

In the synchronic adjustment, it is privileged to have an objective of short term performance, in detriment of safety, in order to obtain compensation in safety too.

Decision making: "it wasn't fast enough, man"

In everyday traffic situations, the motorcycle rider is constantly at danger. The difference between having or not an accident under these circumstances can lie on the timing for reaction that the driver has: *"It was so quick. The guy of the car crossed in front of me and I couldn't get the brakes in time"*

Defined as the time gap between the starting of an external stimulus and the starting of a motor reaction, the time for this reaction in humans is slow compared to a machine. It is around ¼ of a second for visual stimuli and 1/7 of a second for hearing stimuli under ideal conditions (Magill, 2000).

The phases of perception-reaction of the driver can be divided as: identification, decision and action (IDA), that is detect, recognize, decide and act. A regular human being and cautious takes an average 1,5 seconds between identification and acting, not considering the time spent on breaking, once it also depends on the speed and adherence to the ground (Weinberg and Gould, 2001). From this analysis, there would be a minimum distance to be kept between two vehicles, as to allow time if a critical incident might happen be recognized (identified) interpreted (decision) and acting. It is on this equation that vehicle tests are based both in vehicle assembling companies and insurance companies.

Nevertheless, the motorcycle driver lives through this process under the influence of motivation or objectives, for example, correct a delay; emotion, as anxiety or despair; expected or not behavior from others in the traffic: "*Because I was kind of desperate, I was already paying attention way ahead, to the traffic light. Then I saw that the light was turning red, and then I swerved to the left and accelerated it. A car that was a bit ahead did the same.*"

Opposed to the IDA approach listed under the factors of traffic, where the human being would only be a recognizer of stimuli, the approach of Van Elslande and Fouquet (2007) refers to the fact that the emergency situation reveals insufficiencies or defects in one or many components of the system, weakness that remain tolerable when confronted with a regular moderate demanding situation in traffic. There is a chain of human functions involved in the noting, processing, deciding and acting.

The situation of conducting a vehicle will partially determine its action and therefore what concerns the observable: its behavior. Beyond the visible (roads, drivers, vehicles), other components are present as the strategy of the company, its history and of its operator's, the social relations, the rules of the organization, the collectiveness of work, the necessary time to the realization of tasks (in the case of a motorcycle rider, the itinerary) temperature variation, odor, etc.

The driving of a motorcycle is inserted in the context of a competitive traffic that evolves more than one person in its excellent level, that does not depend only on one factor for a stimulus be recognized and then have an excellent decision made in exact 1,5 seconds. The operator is part of the work situation and his state is extremely variable due to the biological rhythms, to the fatigue, to the personal events, of others, pressures.

The same signs can mean different interpretations. That is, for the same danger or risk, factors already lived through by an individual being can cause a different sensation of eminent danger, considering it primary. To another person, the same danger cannot be recognized in the same way.

As per Van Elslande (2001) the distribution of accidental failures identified in accidents show that perceptive aspects, linked to the visibility problems and to the strategies of information capturing and diagnosis, take the most important place in the functional failures rather than those of execution of so called actions, that was also mentioned: "*I even saw the guy standing right up front. I thought he had seen me and he was going to wait for e to go first. I accelerated, but he did too. I didn't have time to stop."*

The motorcycles that have two breaking disks front and back ones, with the first propelled by a handle on the right side of the steer bar (right hand) and the second, of the back wheel, propelled by the right foot, the excellent response to an excellent performance depends on the simultaneous pressing of both handles. The adequate driving demands the use of both hands and feet on brakes, thus aggregating additional element to the phase of diagnosis that under normal conditions, demands the driver to split his attention and behaviors between conduction and analysis of the situation. In this situation it is up to him to capture and sense the signs emitted by the motorcycle in the same time as noticing the physical environment he is circulating and those coming from the other people on the street. When facing events that cannot be managed by the diachronic anticipation, he tries the synchronic way to use new strategies of his repertory, in special those successfully used in the past. Under these conditions, the commitment adopted in order to maintain the conduction can be revealed as being so fragile that prevents the realization of the "double" necessary breaking act.

If you add *people's constraints* to the conditions, as a sequel of a previous accident which leads the motorcyclist to a wrong behavior of driving with just one hand, or its physiologic state, for example, lowering of the alert body system, which now has added to it the capacity to influence the defensive behavior in itself. In other words, the failure of the driving would now depend not only on anticipation and failures on the stages of perception and diagnosis of the situation, but also on the inadequate evasive driving of motorbikes with this type of breaking system.

The fact of driving with only one hand (the right one) was not an aspect reported just in the case of the motorcyclist who presented sequels on his left side due to a previous accident: *"that happens a lot when it is cold. Why would I leave both hands on the steer bar so that the cold wind would come inside through my arm? I use my left only to get going. Then I stuck it in my pocket." "That happens a lot to whom drives Biz"* (scooter hat does not have manual clutch).

The given examples show different origins for situations in which appointments prioritize the search for comfort or lower cost for the driver weakening temporarily the safety in such a way that the driver understands as reasonably acceptable for the performance in focus. The knowledge revealed seems important to the use of forming strategies, aiming to stimulate the critical evaluation of the implications of safety in case of decisions that push he system to the rim of its boundaries of safety.

Multi-task Interaction – When social nature demands cooperation: "The guys don't see us"

The fact of conducting a motorcycle, dealing with its specific operating mode, accelerating, deviating, breaking, already constitutes in itself a set of harmonious and complex gesture procedure, brought from experience of learning, and requires motor skill and physical coordination (Lawrenson and Bellaby, 2001; Mannering and Grodsky, 1995). This study shows that while conducting a motorcycle, the driver, besides that, also worries about the movement of the vehicles and road users: *"we have to take care of other people's safety too"*.

Studies in the American State of Virginia highlights the cases of accidents with cars due to situations in which the driver is in a multi-task event as using the cell phone, eating, disciplining children or putting make up on (Klauer et al. 2006).

Another study, of aircraft pilots, makes use of the multi-task notion in order to describe the management of operations or multi-tasks simultaneously or alternatively. It highlights that this kind of situation is present in practically all professional activities (Loukopoulos, Dismukes and Barshi, 2009). The accident, under this

circumstance, must be seen as a result of the interaction of what is demanded from the task, individual experience, competition between targets/objectives, organizational factors and intrinsic cognitive processes of the human nature.

However, the adequate simultaneous performance is only possible when tasks are fulfilled with a high frequency, together, besides the fact that the responses to the stimuli must be always executed the same way to a certain dangerous situation (Oberauer and Kliegl, 2004). *"The fact of always being exposed to dangerous situations makes us more alert". "Everyday somebody crosses in front of you. Sometimes he/she really doesn't see you. Thank heavens we are alert."*

Therefore, it justifies the driver having to be worried about everything around him/her, *"looking around carefully"*, and once the driving that was before considered safe and sound, can instantly evolute to an incident or accident as a matter of fact. The fact of a vehicle suddenly starting out towards you, must, undoubtedly, provoke a reaction, or a detour, or a breaking act, as the better comer best. Being more and more alert is to acquire anticipation skills, information acquiring, interpretation and motor skill in the act of preventive maneuvers.

The discoveries of this study have revealed that traffic is a space of constant change as well as of interaction of multi tasks. The more complex it is an organization, the bigger the difficulties in communication, coordination and control (Amalberti, 1996). Vasconcellos (2001) has a concept of this area as the "Sociology of Transportation", within the Urban Sociology. The Sociologic focus evaluates the social relations and power structures that are conditioned to traffic, privileging the collective behavior over the individual and opposing to the idea that the behavior of motorcycle drivers comes from his/her biological features (aggressive temper and impulsive nature of man as for instance). The social rules suppress, conserve and overcome the biological norms (Silva, 2012).

In a traffic matter, the interactive activities involve actors apparently independent or controlled by loose mechanism of coordination and stimulus to the cooperation, once the existence of legislation and traffic signs do not imply in direct communication among those actors about the development of the activity oriented by the common objective, as it is the case of the air traffic control system. The construction of a traffic citizen, marked by its cooperation among various actors lies on the dependence to its adherence to the legislation which establishes traffic fines and punishments each time harder upon offenders. It is the predominance of the pedagogy of stimulus to the fear.

The breaking point of strategies and operating modes – when the accident happens: "We're busted." The loss of control of the cognitive commitment happens before the loss of the physical system control[21]. The rupture of this process seems to be in the genesis of the event: *"If you are late, nothing seems right, then I go over the limits." "And as for me, I was speeding because I wanted to be home soon". "It's hurry. I work during the whole day across town. I leave work, rush home, get a shower and off to college. If it is test term it is even worse, then forget it. We get a bit crazy. Some days I feel busted. On Thursdays and Fridays, I am even busier at work. And when it is test term, I have to study when I get back from college, late at night. I go to bed 2-2:30 a.m... I have to be up at 6 a.m. Then, in the evening I try to arrive a bit earlier at college so I can study a bit more before tests, then it is complicated to be alert and pay attention to everything, you know? Life is complicated to everyone". "I have several jobs and I am always rushing from one to another. Now I am working at, besides the hospital, in two family houses taking care of seniors (Nurse)".*

It is not new that work relations are investigated in a trial of understanding if they interfere and how they do it in accidents. In the case of nonprofessional motorcycle riders, this is only incipient. The delay, both on the way to and back from work, notwithstanding the shift, seems to have motivated the practice of speeding, over road set limits: *"I leave the gym around 7:40 a.m. and I am always early to work. But on that day I got carried away chatting with a friend and I left 10 minutes before 8:00. As I was late, I rushed".* In that case the route usually took 15 minutes, but she needed to make it in 10.

The hiring company influences directly on these aspects, as it gradually stimulates the rupture of the strategies and the operating modes of the motorcycle riders: *"where I work, if we are late over 10 minutes, the gate closes. Then we have to ask the director to come out. It is very complicated. He allows us to come in without penalties, but we know it's wrong and I don't like to be looked down upon".*

"There we have a benefit. If we are not late a single time within the month we get a bonus". In the beginning of his statements, especially during the interview, the riders sometimes refer to those charges as if they were personal,

internalized, but soon they add information that reveal their relations with the activity: *"I try not to be late. We don't have stability and we have to obey rules. Moreover: it's my job. If I am late I will have to work overtime"*.

In this point, the outcomes of this work is similar to Diniz', Assunção's and Lima's (2005), that have analyzed professional motorcycle drivers. To them, the rush of the modern world, the constant necessity of living on the fast lane, the fuel saving necessity and the pressures we suffer, both the employers and the addressee of the orders increase the probability of accidents. An aspect that calls the attention as to have been noticed as associated to the origins of the pressures of time is the time organization of the functioning of schools that are shown which are similar to the work place's ones. In both cases when the diachronic question of the task the itinerary planning, the anticipation of the departure time, the reprogramming of objectives, etc., are not possible and do not prevent the event of being late, the conductors sees him/herself impeded of changing things and the strategy that is left is for the use in the synchronic management during the conduction is to speed. The set cognitive appointment is constituted thus privileging the objectives of performance in detriment to those of safety and cognitive cost reduction of the activity.

In this present study, other fundamental factors in the case of workers were the work load, tiredness and lack of sleep. The distraction was also mentioned: *"Sometimes I am really worried about something. Women are like that. We worry about everything. I remember the day of my accident, back then, my work was killing me I was extremely worried if I was going to be laid off or not."*

Reaches and Limitations: How the methodology has contributed to the picturing of the event

In this present study, as it has already been mentioned, we have used the sources to collect information, being those interviews semi-structured, the focused groups and the observations on the places of the accidents. The interviews were tailored as the entrance door for the understanding of each accident in separate, perception of the author concerning the preceding time of the accident, regular conduction recognized by the conductors of the motorcycles cognitive functions (planning of conduction and decision making), experiences in conducting, delays and work load.

Once the observation of the place of accidents were important to the author regarding the flow of vehicles, the local constraints due to the poor viewing, the concrete configuration of lumps and slopes, crossings, pavement, traffic signs, width of road and traffic lights.

The focused groups (two, one of the, with eight and the other with 9 members) happened after the individual interviews and observations on the places of the accidents which served to confirmation and recognition of the strategies and operating modes used by the motorcycle riders, especially to the recognition of some cognitive functions that are used by some of them, with different motivation. This is one of the characteristics of this methodology, which from the moment a person emits his/her opinion, the others are stimulated to speak, agreeing or not, explicating how it is made use of that strategy and action during the driving. One example of that was when a motorcyclist stated that due to a painful sequel from an accident he had had when he was driving with only one hand on the steering bar. This strategy was recognized by the other people as frequently used, and according to them, more used when it is cold and mostly by scooter drivers which one doesn't need to clutch manually.

Thus, the use of the three strategies of collection has allowed the information to be confirmed and the author to understand his/her accident, visualizing the used strategies and operating modes used in regular driving and in events of accident in itself.

The constraint coming from work, home and school/college also seemed to be common sources of not using the cognitive prevention strategy. Therefore, even though this study has been made in a medium size town, there exist constraints that influence on the driving, which reveals that this phenomenon is already present in small towns.

The regular driving of a motorcycle is already considered dangerous. This determines that actions are not enough actions that aim to act in the “safe behaviors” that the motorcycle drivers use, as for example speeding over the road limit. More than that, the use itself of this kind of vehicle is unsafe. Public policies must be based on these statements, and in this way they should not stimulate the buying neither the usage of this vehicle. Rather the policies that could help subside and improve the public transportation are those that can promote changes in the way people move about in motorcycles from the moment they have access to a economical, fast, comfortable and mainly safe transportation.

FINAL CONSIDERATIONS

This study highlights strategies and operating modes used by nonprofessional motorcyclists in their offset work/home/school/meals, in situations considered normal or on those considered variable and frequent that provoked behaviors that were to blame on affecting the conduction and safety.

The management of safety is shown as part of the cognitive commitment. Understood as process and reveals the conduction as a dynamic activity that take into consideration simultaneous and concurrently different objectives, in special two more, related to performance, its relation to the conduction and those of reduction of personal costs and comfort in the activity.

The safety and non-safety seem to be interlinked to a web of factors and aspects in interaction. Itinerary choices, time planning, knowledge of driver of the concrete characteristics of roads, its flow and history of accidents; the knowledge about the features of the vehicle, aspects of the organization of work, chiefly those which associate bonuses or punishments to check in time of employees; constraints derived from eventual changes like weight or volume to be carried, timetable to various appointments notably of the night school, to youngsters, weather changes, personal background, including health certificate among others appear as able to influence the planning of the route or its execution regarding safety or risk. These aspects are linked to the ones that emerge in the situation of driving the motorcycle that demand looking around and social cooperation with and from the other actors present in the traffic set. Under these conditions, safety reveals to be vulnerable to the interferences of a great number of aspects whose control escapes from the driver.

There happens a learning process on the operating modes. That is, the skilled shows him/herself able to anticipate and change his/her way of driving and dealing with several situations, especially sudden ones that just come up within the happening of the activity, even not always having the conscious perception of that.

The accidents have appeared as linked to the rupture of commitment situation, being able to have been made easier in cases which the management of the safety had already shown signs of weakness due to the prioritization of the aspects of the performance or reduction of personal costs and comfort that come in simultaneously and concurrently. In a nutshell, the closing accident is preceded by the surprise that does not allow time for reaction enough for the successful outcome of recuperation, for example, an evasive act. In the case of the nonprofessional motorcyclists studied in this case, the time constraints that were more mentioned in the origins of those situations were related to the organizational work rules of companies in which they acted or to school tasks, normally at night.

Maybe the most evident and challenging form of those ruptures were those in which intentional behaviors of no abiding traffic laws, were the excessive use of speed, either in short routes, in wrong one way streets. These moments the cyclist not only synchronically opts to lessen the importance of use of the safety equipment in his commitment to driving well, but also acts in a way that he/she can make it difficult to build relations of cooperation with the others of the system in which he/she is inserted. Insisting on punishment as the best way to inhibit these behaviors in charge of traffic security leave behind the study of reasons associated to its origin.

So the person cannot be seen as a simple recognizer of stimuli and that who executes the necessary action in the correct moment. Multiple constraints prove to be able to influence the perception of danger and risk and also the corrective action in the exact and necessary moment. Traffic is already a complex space, of competition, full of interactions, of the conductor with his/her motorcycle, with other conductors and pedestrians, with the road, different points of attention, traffic invisible laws, pressures of time origin with origins in the work/home/school rules.

The motorcyclist is not a crazy person looking for accidents. The study shows that he/she not only prepares preventive strategies before starting off his/her journey (diachronic management) but also adds safety care in just about all behaviors that need to be adopted in the management of the acts (synchronic management).

This study allows it to suggest that challenges of prevention should be thought of in accordance to the comprehension of the conduction as a multitask activity that associates concurrent objectives, simultaneous and changeable ones due to characteristics of the organization of the work, the everyday activities that are also marked by the sudden events, as the visit of a relative that has been embedded, a sudden weather change, a chat with a friend that takes longer minutes than the expected and end up putting the driver into a situation of realizing that the next appointment is scheduled with prescribed logic of a idealized world that disregards the similarities to the real life, .the wearing of a tight skirt, the driving of a different model of a motorcycle, an arm that has already been hurt that leads to a change in the operating mode which limits the use of the "body intelligence", that is the execution in the excellent and adequate way to that said situation. In sum, not able to taking an alternative action, he/she has to cope with the delay or punishment imposed and associated loss or opt to the breaking of rules aiming to solve that situation, in other words, miss appointments in which dimensions and personal costs are punished.

Therefore, formation action of motorcyclist must highlight this multi-task nature of conduction of motorcycles emphasizing their multiple components, mapping the importance of synchronic and diachronic aspects, just like their interactions.

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