Is Driving an Expertise as the Others? A Study of Boundary-Work Around the Legitimacy of Knowledge

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Abstract

Since the year 2000, the French Ministry of Transport has incorporated a new instrument called the road safety audit (RSA). The audit proposed a singular method, which consists of assessing infrastructures on the basis of drivers' experiences to get around the limitations of technical knowledge for decreasing the number of accidents. Through an ethnographic study, this article aims to analyze the legitimacy assigned to social and technical knowledge in the auditors' work. I will study the legitimacy issue through the cognitive change initiated by the audit and the political stakes confronting the Ministry which ascribe, for their part, a central place to technical knowledge. In this way, I will analyze the auditors' boundary-work around the legitimacy accorded to driving and technical expertise in different moments of RSA assessment.

Keywords

expertise, road safety, knowledge, legitimacy, boundary-work

For more than 40 years in France, road safety engineering methods put the drivers' behaviors aside. The reactive approach illustrated this engineering way (Galland, 1991). This approach consisted of delimiting zones of accidents through statistical studies from police reports. Every zone of accidents was indicative of an infrastructural geometrical problem. In this way, engineers had to detect the local cause of accidents and resolve the problem by a specific road construction (Galland, 1991). While the reactive approach has significantly reduced the number of accidents during 1970-1990s, since the year 2000, the engineering methods of the Ministry of Transport have begun to change.

Indeed, after a gradual decline in accidents since 1990, the death toll of people killed in 6 days rose to 8,437 killed in 1998 when compared with 7,989 in 1997 (Road Safety National Interministerial Observatory [RSNIO], 2007). Faced with this rise, the road safety has become an important stake particularly held by Jacques Chirac who was seeking a second presidential mandate during the presidential election in 2002. After being the "great national cause" of his last term, road safety has been declared, after his re-election, the "vast presidential political endeavor" during the French National Day. This change of political semantic is not neutral (Devillard & Marchetti, 2008). From that moment, road safety field has become a showcase space, a barometer of the State action.

At the same time, the Ministry of Transport was confronted with structural stakes. Environmental problems linked to the land-use planning policy and the decentralization of the State competences since 30 years in spatial planning project and transports have radically transformed the relation between users and State services. Embodied by the Barnier law (Law related to the strengthening of the environment protection, 1995) and the Democracy of proximity law (Law related to the Democracy of proximity, 2002), citizens and associations are granted a hitherto unseen right to examine. This transformation of the users' role leads to the transparency of the State action and to possibilities of judicial sanctions against the Ministry (Worms, 1985).

Consequently, the French Ministry of Transport has undertaken a reorganization of its services. Until then, the road safety control was ensured by local services called Departmental Cell of Exploitation and Security (DCES). DCES provided a road safety expertise for local services of road construction and also realized the assessment of these infrastructures. In a "judicialisation" context,[1] the DCES judge and be judged position posed problem. Thus, the control ensured by DCES has been replaced by the Road Safety Audit[2] (RSA) in 2001 and completely suppressed in 2007. To guarantee the independence of RSA from local services, which realizes the project manager's functions, RSA has

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been put under the administrative supervision of the General Directorate for Transports and Infrastructures (DGTI) of the central Ministry. In this way, the protection of the Ministry services against judicial pleas has induced an administrative reorganization, which granted a significant place to central services of the State in the road safety control.

The RSA implementation also gave the opportunity to bring in a new method named the proactive approach. The proactive approach considers that the application of technical norms is not sufficient to guarantee by itself the users' safety. To go beyond these limits, the proactive approach proposes an inductive assessment of the road. It consists of driving on the infrastructure for picking up failing elements on the basis of the auditor drivers' feelings. As outlined by the designers of RSA, this instrument aims to depart from technical tropism by giving a place to drivers' experiential knowledge:

> Road Safety Audit . . . is not intended to be technical check on the design elements nor a design standards check . . . Although Road Safety Audit does look at scheme design from the road users' point of view, it is not in fact a road user audit—which aims to ensure that each road user has been adequately catered for within a scheme. (Belcher, Proctor, & Cook, 2008, pp. 1-2)

Hence, after an experimentation period, RSA had been officially incorporated in 2001 by a circular (Circular related to the implementation of a road project security control, 2001). But, during the experimentation, the auditors realized the road safety control on the basis of their driving expertise. The Ministry integrated a compulsory new technical tool called analysis grids[3]: These instruments propose to technically frame the use of drivers' experiential knowledge. Used during the assessment of the road, the grids are composed of several questions considered as the main drivers' interrogations in a driving situation. These drivers' interrogations referred to technical answers from engineering books such as Technical Conditions for Planning Inter-Cities Highways or instructions about Main Roads Planning. Considered by the auditors as a technical check, which digresses from the inductive approach of RSA, auditors are confronted with a contradictory injunction. They have to realize the road safety control between two different kinds of knowledge: the drivers' experiential knowledge suggested by the proactive approach and the technical knowledge from the analysis grids imposed by the Ministry.

How auditors proceed to a road safety control between these two forms of knowledge? Does one prevail over the other? Do these kinds of knowledge have the same place and legitimacy in the RSA expertise? Here, we will put aside issues about governmentality (Foucault, 2004) through the New Public Management and neoliberal logics of the audit (Power, 2005; Rose & Miller, 1992). Also, we will not analyze the question of confidence granted by the audit through the risk issue (Power, 2005). Based on the case study of auditors from

French Ministry of Transport, this research aims to analyze, in an ethnographic way, the work done by the auditors between two contradictory forms of knowledge. This analysis will interrogate the classical opposition between expert and lay-knowledge described in the sociological literature and lead us to study the auditors' boundary-work through the legitimacy issue (Gieryn, 1983).

In the section "Beyond the Symbolic Struggle: When RSA Revamps the Expert and Lay-Knowledge Relation," we will see that RSA revamps the expert and lay-knowledge relation by posing this issue outside the symbolic struggle dimension. Based on this observation, we develop an original methodological approach, which consists of defining RSA expertise not as a social position but as a process of acquisition of knowledge (Trépos, 1996). Then, we will present the results of our ethnographic study realized in Lot-et-Garonne[4] department. As such, we will see that technical and driving expertise are mobilized in two different moments of RSA. We will see that these moments refer to a differentiated use of the legitimacy assigned to technical knowledge and drivers' experiences in accordance with the particular stakes that expertise has to answer. Therefore, we will open a last discussion about the legitimacy of knowledge through the problem extension established by Collins and Evans (2007).

Beyond the Symbolic Struggle: When RSA Revamps the Expert and Lay-Knowledge Relation

From philosophy (Habermas, 1973) to the Actor-Network Theory (Barthe, Callon, & Lascoumes, 2001; Callon, 1986) and the second wave of the sociology of science (Bloor, 1976; Brint, 1994; Collingridge & Reeve, 1986; Jasanoff, 1994, 2005; Jasanoff & Wynne, 1998; Roqueplo, 1997; Roy, 2001; Wynne, 2001), the theoretical literature about the expert and laypeople relation mainly focuses on the lay-knowledge difficulty to succeed to the symbolic struggle against the technical or the scientific expertise.

For its part, RSA seems to be a paradoxical object. On one hand, by using drivers' experiences, RSA seems to transcend the symbolic struggle between expert and lay-knowledge. On the other hand, the technical knowledge and the compulsory character of the analysis grid interrogate the possibilities of hybridization process. In the RSA case, drivers' experiences and technical knowledge both participate in the assessment but are related to two different rationales for action. The technical knowledge falls within structural logics. It is a form of knowledge that stems from past engineering experiences and that has been institutionalized and formalized in norms. It is internalized as the reference that has to be applied in a given context. The drivers' experiences, for their part, appear as a form of knowledge that comes from subjectivation process (Cantelli & Genard, 2007; Dubet, 1994), that is to say, the resources accumulated

by driving experiences through the singularity of each social trajectory (Dubet, 1994). In this way, driving experiences appear as non-formalized knowledge but which can be formalized in engineering norms in the future.

Hence, the question posed by RSA is not the issue of the struggle between technical and drivers' experiential knowledge but the issue of the auditor combinatorial activity between these technical and driving expertise. In this way, RSA expertise must be comprehended as the result of expertise acquisition through socialization process (Collins & Evans, 2002, 2007).

The question of the use of knowledge is directly and deeply linked to the issue of the legitimacy. Indeed, a social actor will use a particular form of knowledge because, this one, consciously or not, appears legitimate for him in a particular social context. In this way, to analyze the legitimacy issue between technical and driving expertise, we decided to use the boundary-work notion (Gieryn, 1983). Here, we defined the boundary-work as the notion that focuses on the boundaries lability between different forms of knowledge according to their social use and actor interplays (Bérard & Crespin, 2010). Specifically, this notion tends to highlight the paradoxical process between the permeation and demarcation of knowledge. It tends to understand the social determinants that encourage the social actors to consider a form of knowledge, at any given moment, legitimate to participate in expertise, and, at another time, as a non-legitimate.

Because the legitimacy assigned to a form of knowledge is deeply linked to conscious or unconscious social determinants, the analysis of the boundary-work in RSA has to be put in perspective not only with the political, historical, and cultural context but also with the auditors' social trajectories that structure the RSA expertise.

Case Study: Are Auditors Experts as the Others

The study of the auditors' social trajectories and the analysis of the historical, cultural, and political background of the Ministry have highlighted the specific features of the RSA. Fruit of the French engineering tradition and holder of a new form of expertise, the auditors both differ from the classical expert of the Ministry and fall within the traditional French engineering epistemic culture (Knorr-Cetina, 1999).

Indeed, as the overwhelming majority of scientists and technicians in France, auditors are civil servants of the State. Since the Jacobin period, science and technical domains are submitted to the administrative supervision of the State (Hayek, 1980; Jasanoff, 2005; Roggero, 2006). The corps notion, defined as the means to recruit, manage, and control people in the administration (Thoenig, 1987) as well as the State control toward the schooling system are two instruments that participate to the State domination toward science and techniques.

The auditors arise from this context. Auditors are road engineers and civil servants of the French State. They have been educated in engineering schools such as the National School of Technicians of Equipment or the National School of Civil Engineering. After graduating, they have moved toward a civil servant career in the French Ministry of Transport. There, during the first years, they have been trained trough a companionship system. Escorted by an experienced engineer, they have been trained on the application of technical knowledge and are reinforced with the idea of their corps belonging. The case of an auditor from the Departmental Direction of the Territories (DDT) illustrates this trajectory:

> After obtaining my engineering degree at National School of Civil Engineering, I entered, in 1981, in the road subdivision of Gers department. In Gers, I learn the crucial knowledge of the road project. . . . In 1981, I met a technician from the National School of Civil Engineering who was head of section and also my spiritual father. With him, I put my theoretical knowledge to the test of his practices and I learn a lot. (Auditor from the Ministry of Transport)

Moreover, the auditors' trajectories denote the acquisition of a heterogenic technical knowledge. Indeed, auditors have worked in different services of the Ministry and been initiated into several domains of the road as design, sign boards, or accident analysis:

> My entire career is based on road safety operations. I entered to the Ministry as a designer. In this stage, I learned my job: guides and others instructions. I have been lucky to work in companionship with a road safety technician from the TSCE. He taught me a lot about the horizontal alignment, what it could be dangerous about bending and width or not dangerous. Then, when I entered to infrastructures service, I taught lot of things about the road alignment. What I could do and what I couldn't do about bending and gradient. So, here, it was very precise. There are documents, norms to design a road alignment . . . After that, I entered in CDES. I obtained the rank of assessor . . . I work on the equipment domain as a technical adviser. After that, I work more specifically on the road safety issue. I have been trained by my colleagues of the accidents service. Then, I was attracted by the proactive approach so I decided to join the training to be auditor. (Auditor from the Ministry of Transport)

As we can see at the end of this abstract from an interview, the auditors' trajectories are also characterized by a specific training. First realized internally and next framed by a European directive in 2008 (Directive of the European Parliament and Council about the safety management of road infrastructures, 2008), the RSA training is recognized by the certification handed over by the minister. This training emphasizes on the proactive approach learning. It shows the necessity of the use of drivers' experiences in an inductive approach of the road and presents the analysis grids, which have to be used to complete the driving expertise.

This training lasted two days. First, they presented the audit method. The audit is above all a road control based on the drivers' eyes. That's drivers' experiences, sensitivity and feelings. The auditor is more human than prescriptive. In a second phase, they showed us tools that we have to use including the analysis grids. (Auditor from the Ministry of Transport)

Trained in national engineering schools, then by companionship in several services of the Ministry, and finally educated through the specific RSA training, the auditors' trajectories are characterized by the acquisition of an eclectic knowledge. This eclecticism incites auditors to define their expertise as generalist. "This is general culture. . . . We have a large and plural knowledge. We are not specialist of a domain but we can bring out where the problem is. We assess a road project on through the prism of several dimensions" (Auditor from the Ministry of Transport).

But, the word "generalist" also indicates the integration of a symbolic violence (Bourdieu & Passeron, 1970). Indeed, if auditors define themselves as experts, the auditors' plural knowledge is seen on the margins of the institutional definition of the expertise. The canonic definition of expertise is presented as follows by an auditor:

And you, what do you think about that? For me, I am an expert. But here an expert is someone who perfectly knows his field and who follows the evolutions of his field. To be expert you have to be specialist of a domain. There is an expertise commission in the Ministry, which confers the title of expert to an engineer. In front of a commission people have to show their skills and knowledge. Then, a jury decides if you are expert or not. (Auditor from the Ministry of Transport)

At the end of this analysis, we can see that RSA expertise is in the heart of two paradoxes. First, auditors are both trained to technical methods and to driving expertise. Second, auditors are subjected to a symbolic violence in the road engineering field structured around a distinction between "specialized experts" and "general experts." Thus, these two paradoxes interrogate the role and the place given to the technical and the driving expertise in the RSA.

Method

To analyze the auditors' expertise, we have realized an ethnographic study. France is divided into 11 geographical areas where auditors realize the road assessment: North-West, South-West, Atlantic, Center-West, West, Ile-de-France, Mediterranean, Massif Central, Center-East, North, and East. In this study, we have interrogated 11 auditors located in the southwest of France in the cities of Agen, Auch, Bordeaux, Pau, and Toulouse. Auditors are road engineers who are physically into local services, as the Interdepartmental Direction of the Roads (IDR), the DDT, or the Technical Studies Center of the Equipment (TSCE), but, unlike their colleagues, the audit mission is directly reported to the General Inspector of the Roads (GIR) from the DGTI

Through the observation of daily practices, we have highlighted how auditors produce RSA expertise between driving and technical knowledge. We have based this ethnographic study on the "becoming-expert" approach developed by the French sociologist Jean-Yves Trépos (1996). This consists of comprehending expertise as a social process of knowledge acquisition through the actor's social trajectories. For Trépos, many social figures participate in the expertise. In turn, instrument of the political domain or citizen, the expert realizes his work in the convergence of several figures. For bringing out these figures, Jean-Yves Trépos proposes to analyze the material equipment (books, tools, regulations) and the immaterial equipment (knowledge, representations).

So, rather than sociology of expertise, we carried out sociology of experts. We ran this empirical study for 1 year in the southwest of France. We have realized 46 semi-directive interviews. First, these interviews consisted of interrogating auditors about their social trajectories to bring out the immaterial equipment acquired in each important stage of their professional life.

Thus, concurrently with these interviews, we have realized a documentary analysis of the auditors' material equipment. The analysis grids are the most characteristic tools of the auditor. There are three kinds of grids: urban grids, interurban grids, and speedways assessment grids. Analysis grids are composed of several questions which correspond with users' interrogations in a driving situation. All these questions refer to answers from technical instructions and engineering guides. Instructions are regulatory texts introduced by a ministerial circular. They pose rules that must be respected for building a road. Guides, for their part, are advices for applying instructions. Instructions as guides have a compulsory character. Auditors, as civil servants of the Ministry, cannot infringe these technical texts except with a ministerial decision that allows derogation.

After pursuing semi-directive interviews, we interrogated auditors about the use of the drivers' experiences in RSA expertise. Here, auditors had many difficulties to express what drivers' experiential knowledge was. Evasive words such as feelings or sensations were employed to qualify it. So, to analyze the way in which drivers' experiences were used, we realized direct observations of audit realization. Conducting direct observations was a relevant method to analyze the auditors' boundary-work. We have distinguished two different moments in RSA expertise. The first moment consisted of controlling the site with drivers' experiences by driving on it and the second stage consisted, for its part, of checking engineering norms application with analysis grids. Here, we have observed the complexity of RSA expertise, which both transcends and establishes boundaries between technical and drivers' experiences. Supported by unstructured interviews, we interrogated auditors during the assessment of the road and brought out the boundary-work realized around the legitimacy of knowledge in different moments of RSA expertise.

Here, we will present results from the audit realization observed in Lot-et-Garonne. This audit consisted of checking 5.7 km of a road bypassing a town constituted by a bidirectional section, a dual carriageway, and two traffic circles.

Assessing Roads With Driving Expertise: A Cognitive Change in Road Safety Control

Arriving at the site, auditors drove on the road at 100 km/hr, 10 km/hr above the restricted speed because they considered that they would drive at this speed in their everyday life. In a bend turning on the right, where overtaking was authorized by a dotted line, auditors picked up lack of visibility of the opposite road. This feeling was noticed and confirmed in a second passing. Then, the auditors decided to step out of the car and noted the presence of a noise barrier on the side of the road. They finally concluded that acoustic screening, in an overtaking action, concealed cars that came from the other side of the road. They related this moment to the use of their drivers' experiential knowledge:

> That's observations or sensations of drivers. I don't know. It's like if I said: with these sensations am I comfortable on the road by driving at this speed? It's like sensations related to visibility. That's feelings, drivers' feelings but only feelings you know. (Auditor who realized the audit in Lot-et-Garonne)

In this instance, the auditors' difficulty to qualify the knowledge, which participates to driving expertise, can be explicated by the fact that auditors mobilize a tacit form of knowledge (Polanyi, 2009), specifically a somatic tacit knowledge (Collins, 2010). This form of tacit knowledge refers to physical limits of human body. Indeed, if driving can be defined as the fruit of socialization process acquired by training in a driving school or by interacting with other drivers on the road, driving can also be comprehended as the fruit of a bodily learning by the apprenticeship of the reduction of field of vision caused by speed or by the integration of road signs information in a moving car (Dant, 2004). So, we can define the auditors' tacit knowledge as a form of bodily past experiences capitalized and revived into the present actions (Schütz, 1967).

The utilization of the drivers' tacit knowledge can be explicated by two forms of transformations in the methods used in the road safety control. First is the change of the expertise temporality. The proactive approach has been incorporated to overcome some limitations of the reactive approach. One of the most important critics was that reactive approach does not anticipate accidents soon enough. Indeed, based on the statistical study of police accident reports, the engineering solutions are provided after accidents realization: "Reactive approach cost a lot. There is dead and wounded. The limits of reactive approach are to act after accidents" (Auditor from the French Ministry of Transport).

The proactive approach held by RSA proposes to raise accident prevention by intervening before the road is opened to the traffic. So, the auditors' work cannot be based on statistical studies. Thus, the road safety control is realized through an inductive approach of the infrastructure. Auditors drive on the road to anticipate future accident occurrences on the basis of their lay-drivers' knowledge. This new form of temporality transforms the relation to the knowledge used for assessing the road. Contrary to reactive approach based on statistical report of accidents, auditors have to anticipate what kind of accidents could happen. The proactive approach encourages in this way the use of the lay-drivers' knowledge: "Contrary to reactive approach, we have no accident data. But even though we don't have data, we are able to predict safety. This subjectivity is based on our experiences of driver" (Auditor who realized the audit in Lot-et-Garonne).

The second change is related to the transformation of the relation to the engineering norms. Indeed, the use of the lay-drivers' knowledge is seen as a supplement of the limits of technical knowledge. Norms are not considered as the sole guarantee of safety. The technical knowledge is seen limited for decreasing, by itself, the accident occurrences. The drivers' experiential knowledge is seen as a palliative of the limits of technical knowledge. This position also reveals interrogations about a decrease in confidence assigned by auditors to their own road safety techniques:

> We can respect norms and rules and, despite everything, there are still problems for drivers' safety. I think it is one of innovations of RSA to say we admit that norms cannot be only efficient for safety. Engineers evolved. Engineers are not absolutely sure that they reach to dominate nature by techniques. When I say nature I say physical nature and human nature and the audit embodies this movement. (GIR, director of the audit mission)

RSA has transformed the engineering cognitive set in the road safety control. The change in the temporality and the relation to engineering norms break off the strict technical assessment held by the reactive approach. In this first stage of the audit, the legitimacy accorded by engineers to driving expertise is unquestionable. The legitimacy of drivers' experiential knowledge comes from its capacity to transcend the limits of the technical assessment. In a traditional technical domain as road engineering, the legitimacy accorded to somatic tacit knowledge based on past driving experiences is singular. Drivers' experiences participate in practice to RSA expertise as any other technical form of knowledge. It even appears in a legitimate similarity, which gets around the limitation of technical knowledge. However, if the driving expertise is particularly significant in the audit's first stage, during the second stage, the technical control occupies a central space.

Assessing Roads With Technical Knowledge: The Answer to Political Stakes

During the second stage, auditors leave the car and walk on the site to control correct norms application. In the case of

Lot-et-Garonne, some failing points have been brought out. For example, the road sign D42, which informs about the different directions at the next crossroads, was not set up at 1.20 m from the safety barrier. Moreover, two safety barriers at a distance of less than 150 m between each other were not joined. This checking of norms application was realized by the use of the analysis grids.

If the grids want to express the drivers' interrogations on the road, auditors consider grids as a tool for applying technical rules than expressing a real drivers' point of view. For the auditors, the compulsory character of instructions and guides, which grids refer to, strengthens the technical vision of the road safety assessment. In this way, grids appear as a tool that frames the drivers' point of view in technical thought: "Grids are made for a technical checking to see if all is conformed to rules of road conception. So, the answers of questions from guides are technical because the answer is based on regulations" (Auditor who realized the audit in Lot-et-Garonne).

In this second stage, the centrality of the technical expertise finds a political explanation. An auditor, who contributes to the first RSA in France, explains the causes of grids incorporation. The analysis grids have significantly changed the first objectives of the RSA:

> The first time I realized the experimental RSA, there were no grids. It was only our drivers' experiences and our knowledge of the road. And, during this period, we have gone further. In addition to our control, we invite users and policemen to assess the road in parallel. So, during the first audit, we were more in drivers' behavior notion. Now we are based on grids because, in the last thirty years, there has been the creation of victim associations. Moreover, today Medias relay information that road kills. So, the State had to set a good example especially because since Chirac the road safety is a national cause. So, with analysis grids we have a same technical document of assessment in order to ensure the coherence and the homogeneity of road safety control and consequently of infrastructures. (Auditor from the Ministry of Transport)

Moreover, this auditor underlines that grids incorporation echoes the change of the political road safety context. In a decentralized State organization, where the possibilities of pleas from victim associations against the State are more recurrent, the Ministry of Transport protected him by the incorporation of new procedures: "More and more victim associations make judicial reviews. Were often are investigated and blamed. Now, we have established procedures in order to avoid that our criminal liability was called into question" (Auditor from the Ministry of Transport).

RSA embodies one of these procedures established for judicial protection quoted in this abstract from interviews. As we have seen, the suppression of DCES because of its judge and be judged position and the supervision of RSA by the central services illustrate this movement:

> The circular of 2001has incorporated a system of control in which the contracting authority is ensured by central administration. There is a very little delegation of power to local

services. All files are approved by the minister and for the minister through directors of central administrations. If the project is approved, it returns to local services for implementation. Local services have a little room for manoeuvre. (GIR, director of the audit mission)

Back in its territories through the RSA, the State protected its services against pleas by implementing the same technical tool of road safety control. By their compulsory character and because they refer to the same engineering regulations, the analysis grids represent a technical reference document, which guarantees "good" realization of the road safety control and, moreover, the same road assessment all over France.

> We are in a Jacobin Country. If you live in Brittany or in the Cote d'Azur, a dual carriageway has to be made like this and not in another way. Roads has to be homogeneous because users must find everywhere in France road infrastructures which are the same for its safety. (GIR, director of the audit mission)

Finally, if the technical knowledge, held by grids, is used to control the application of engineering regulations, it is also mobilized for political purposes. In this instance, the political stakes about the pleas against the Ministry have necessitated the incorporation of the same technical reference document: the analysis grids.

This empirical study shows that driving and technical expertise both participate in the RSA assessment. But, they are mobilized in two distinct goals. If the driving expertise is used to transcend the limits of technical control, analysis grids reintroduce a technical look to answer to political aims. This observation incites an open discussion around the legitimacy assigned to these two forms of knowledge.

Differentiated Legitimacies: Drivers' Experiences and Technical Knowledge Through the Problem of Extension

The ethnographic study of the auditors shows that drivers' experiences have acquired a real legitimacy in the road safety control. Drivers' experiences are not marginalized. On the contrary, they actively participate in RSA expertise just as technical knowledge. From the reactive approach, which realized a technical control of the road, to proactive approach where drivers' experiences take part in the expertise, the engineering methods of road assessment have changed. Driving expertise, which would have been qualified as an illegitimate form of knowledge during the period of the reactive approach, now participates in the assessment as well as the technical expertise. In the abstract of the final report below, we can see the place given to technical and drivers' experiences. The section written in black refers to technical norms application related to the height of safety barriers or the absence of road signaling. The red part refers to lay-driver's knowledge and talks about the lack of visibility for overtaking caused by noise barrier on the side of the road.

Section courante

Sous-thème	N°	Questionnement	Documents de référence	Objet/sans objet/pas d'élément pour répondre	Constat
Lisibilité	I.1	La perception du tracé par l'usager est-elle suffisante, notamment dans les points singuliers ?	ICTAAL 3.3 ARP3.3(R) SRR4.3b		
	I.2	Les phénomènes de fausse perspective ou de vue directe sur une voie latérale font-ils l'objet de dispositions appropriées ?			
Visibilité	II	Les distances de visibilité sont-elles suffisantes à la vitesse autorisée ?	ICTAAL 2.2.1, 2.2.2, 2.2.4, 2.2.5 et 2.2.6		
	II.1	a) sur un obstacle situé sur la chaussée	ARP 4.2b et 4.3 SRR 4.5, 5.4d		
	II.2	b) sur virage	ARP 4.2a et 4.3 SRR 4.5, 5.4b		
	II.3	c) lors d'un dépassement autorisé	ARP 4.2.d et 4.3 SRR 4.5, 5.4e		

Source : Service d'Etudes sur les Transports, les Routes et leurs Aménagements, 2005.

But, during this study, we do not bring out any hybridization process. Even if driving expertise is acquired, in this day, a real expert legitimacy in the road safety control, technical, and driving expertise appears as two distinct corpus of knowledge, which both participate to the RSA assessment but without interpenetration and translation process.

Despite the legitimacy assigned to driving expertise, a boundary with the technical knowledge remains: "On the one hand, we have the users' eyes of a lambda driver but, on the other, we have to answer to political orders so we have difficulties to dig out ourselves from the technical domain" (Auditor from the Ministry of Transport).

This boundary is structured around the legitimacy assigned to the technical and driving expertise according to the purpose that they have to treat in the expertise. This separated coexistence refers to the problem of extension (Collins & Evans, 2007), defined as the moving of expertise boundaries around what is considered as legitimate knowledge to contribute to expertise (Collins & Evans, 2007).

In this instance, the founding principles of what is considered as a legitimate expertise for assessing infrastructures have shifted. Today, the technical knowledge is no longer considered as the sole knowledge able to guarantee by itself the safety for users. The driving expertise appears as a new resource of road safety assessment to mitigate the technical limitations. But, a new form of boundary between technical and driving expertise is maintained. The political stakes, which RSA expertise has to answer, mark the demarcation. Indeed, if the use of driving expertise is judged as legitimate to guarantee the safety of users, this legitimacy disappears at the moment when RSA has to answer to the stakes of the judicial reviews against the Ministry. Here, technical expertise held by the analysis grids still remains the most legitimate one.

Indeed, under what is presented as the main goal of expertise, that is to say the reduction of road accidents, the driving expertise is used in the road safety control of the infrastructure. But, regarding what are considered as peripheral stakes of the road safety control, the technical expertise is mobilized to answer to political stakes about the possibility of citizen pleas against the Ministry. In this way, the legitimacy accorded to driving expertise ends where the political stakes begin.

Thus, this discussion should not do without a last theoretical reflection about the participation of lay-knowledge in the expertise. If the analyses of the expert knowledge domination toward laypeople are limited, the hybridization of the lay-knowledge seems not complete too. Indeed, this definition suggests a translation process of the lay-knowledge in the technical expertise, that is to say a total permeation between technical and lay-knowledge in another form of knowledge: a socio-technical knowledge (Callon & Rip, 1992). As we have showed, the legitimacy accorded to drivers' experiences ends when expertise is confronted with political stakes. In other words, a form of lay-knowledge can be considered as legitimate to participate in the expertise but remains compartmentalized and assigned outside the management of political stakes.

Thus, a question has to be posed. Does the particular legitimacy assigned to technical knowledge in the management of political affairs not underpin an unconscious acceptance of its authority in this domain? Bourdieu (1984) showed that, beyond the concepts of authority and domination, the legitimacy is also determined by a tacit acknowledgment. Thus, if the boundaries of what is considered as legitimate knowledge to participate in the road safety control have changed, the legitimacy assigned to the technical knowledge in the management of the political domain remains tacitly acknowledged and renewed. Nowadays,

in front of the increase of the citizen participation in decision making (Blondiaux & Sintomer, 2009), the boundary between the expert and lay-knowledge have moved. Thus, today, the question of the lay-knowledge participation deserves to be reexamined through the real role assigned to lay-knowledge in the expertise and the tacit acknowledg-ment of the technical knowledge legitimacy in the political domain.

Conclusion

Given the use of new instruments of governance and legal obligations in policy making, the expert and lay-expertise has to be revived today. The RSA case study participates in the revamping of this classical question in sociology through the legitimacy issue. Instead of hybridization process or strict opposition between technical and driving expertise, we highlighted the auditors' boundary-work around the legitimacy of knowledge. We showed that knowledge participation depends on the legitimacy assigned to it in a particular moment of the RSA expertise. In this way, we brought out a new form of demarcation between expert and lay-knowledge. If driving expertise is considered as a legitimate form of knowledge to realize road safety control, by its capacity to get around technical limitations, the technical expertise remains, for its part, the most legitimate to answer the political stakes.

In this way, the RSA case study transcends the domination issue of expert toward lay-expertise and also exceeds the hybridization process. It guides to analyze the conscious or unconscious use of the knowledge legitimacy in the frame of the problem of extension. This new perspective leads to new questions about the participation of lay-knowledge in decision making through the tacit acknowledgment of technical knowledge legitimacy in political domain. If the lay-knowledge legitimacy ends where the political stakes begin, is it simply a showcase effect of its participation or does it express a new State action rationality?

Notes

1. We can quote, since 1990, several cases of jurisprudence of the Council of the State implicating the liability of the public authority: for example, the decision of the Council of the State no. 52866 in May 25, 1990, related to the non-indication of a roadway slumping between 4 and 8 cm deep and 1.30 m wide; the decision of the Council of the State no. 52867 in June 8, 1994, related to the absence of wastewater system leading to the black ice formation; and the decision of the Council of the State no. 164738 in May 17, 2000, related to the non-indication of the road deformation on 25 m. Moreover, we can also underline the important role of users associations. Recently, in 2012, the National Federation of road-accident victims has obtained the recognition of the notion of "shortened life prejudice." This new judicial notion aims to compensate the families that have lost a young family member.

2. Road safety audit (RSA) is not particular to France. Created in 1986 in England, RSA has been incorporated in Denmark, Australia, and New Zealand since 1990. In their turn, Canada, the United States, Italia, Greece, The Netherlands, and France ministries adopted this instrument during the 2000s. Since 2008, RSA is extended to all European States

3. Analysis grids have been especially realized for the RSA by a steering committee composed of agents from technical services of the Ministry. There are three kinds of grids about urban, interurban roads, and speedways assessment. They have been made on the basis of a study called "Roads and Streets Safety" produced by two services: the Service of Studies on Transport, Roads and their Planning (SETRA) and the Center of Studies on Networks, Transport, Urbanism and Public Constructions (CERTU). This study proposed a survey of several works, which contribute to understanding users' behaviors through its interactions with car and infrastructure. The analysis grid is composed as follows: in the first row, the thematic of the issue is given (e.g., lisibility, visibility . . .); in the second row, the number attached to the issue is given; in the third row, the issue is given; in the fourth row, the reference technical document is presented; and in the fifth and sixth rows, the answers and comments are given, respectively. Below is an abstract from the analysis grids.

III – Principales observations relevées

A - Section courante X

- Les trajectoires de sortie derrière les dispositifs de retenue utilisés pour isoler les remblais n'ont pas été correctement prises en compte. Compte tenu de la hauteur de certains remblais cela peut être dangereux. Les origines de glissière peuvent être déportées ou noyée dans les talus voisin pour empêcher les chutes.
- Aucune borne ou plaquette PR n'a été relevée sur l'itinéraire.
- Le linéaire de 2x2 voies équipées de DBA en TPC et GBA en accotement est relativement important.
- Sur les rabattements de fin de 2x2 voies, il manque les panneaux B14 « 90 » et C28 en position. De plus, les panneaux C28+ M1 ne sont pas doublés en TPC.
- Les écrans acoustiques sont fixés sur des GBA élargies : la zone d'isolement ne semble pas être respectée. Ces écrans risquent alors d'être endommagés en cas de choc d'un PL.

Section bidirectionnelle :
Sens sud nord :

- l'axe est équipé d'un marquage discontinu de type T1. Sur la section en courbe à droite, la distance de visibilité requise par la 7ème partie de l'IISR de 200m semble être respectée. Néanmoins les conditions sont limites pour dépasser en toute sécurité d'autant plus que l'écran acoustique réduit le champ de vision en intérieur de courbe.
- le premier D42 rencontré avant le giratoire de X est en partie masqué par l'écran acoustique. De plus, il est implanté en extrémité de glissière GS2 et la distance entre le nu avant de cette GS2 et le D42 est inférieure à 1,20m. Cet obstacle n'est donc pas correctement isolé.

4. Lot-et-Garonne is a department in the region of Aquitaine in the southwest of France. Its administrative center is the town of Agen.

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