

Mobile ICTs as tools of intensification of travel time use ?

Results of qualitative study based on French workers

Preliminary version

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Abstract: The increasing use of ICTs –and especially mobile ones – strengthens the assumption of a diversified range of activities being performed in car, in train, in bus, in plane, etc. Technological mobile devices such as handphones, smartphones, PDAs, laptops, Wifi and many others allow individuals to do many tasks everywhere. These evolutions traditionally comfort the hypothesis of intensification of travel time. But how do people use their travel time and how do they use ICTs within? According to the uses and practices of a representative sample of French workers, ICTs allow performing in a different way activities formerly performed. They also enable people to communicate easily but these uses highly depend on the context of the travel (length, distance, purpose, mode, steps, personal and professional settings, etc.).

Keywords: mobile ICTs, flexibility, ordinary travel, time travel, context

1. Introduction

ICTs might be seen as the way to virtually travel, to replace physical moves by dematerialized ones. For example, e-shopping allows individuals to shop online, phone calls or conference calls can replace face-to-face meetings or teleworking give to individuals the ability to work at home or at least far away from the office. This substitution is not obvious. Many studies enforce that the impact of ICT on activities such as leisure ones (P.Mokhtarian, I.Salomon, S.Handy, 2006) is more complex. If ICTs are able to replace some activities (substitution), they are able to create new ones (generation) or enforce older ones (modification). By focusing especially on travels, P.Mokhtarian (2003) identifies 4 likely links between the uses of ICTs and travels which are both seen as communication tools:

- Complementarity. Travelling or using ICTs enforce the use of the other mean of communication
- Substitution. Using one of this mean replace the use of the other.
- Modification. The use of travel or ICTs induces a change in the way the other mean is used by individuals.
- Neutrality. Travel or ICTs doesn't impact each other.

By identifying these different effects, P. Mokhtarian showed that the link between ICTs and travel can't only be substitution. Travels may be seen as derived demand from daily activities located on different places which are destinations. But the utility of mobility must not be reduced at the destination: activities performed during the travel have to be taking into account (P. Mokhtarian, I. Salomon, 2001). Using ICTs when travelling is seen as a way to increase the utility of travel, to perform time savings (P. Mackie and ali., 2003). Many researchers recognized that the use of ICTs “*may lead to changes in location, timing and duration of people activities [...] and will be associated with new patterns of activity and travel in space time*” (M.P. Kwan, M. Dijst, T. Schwanen, 2007, p.121). Several studies aim at describing these changes and how ICTs affect travels (destination, duration, costs, etc.)

Some of them are more deeply focusing on the way people are able to fulfil travel time which is often considered as a wasted or empty time (G. Lyons, J. Urry, 2005).

Because they are more and more mobile, ICTs allow individual to perform many tasks when they are moving such as work, read, communicate, etc. All these uses are not necessarily new. But ICTs are seen as the way to easily expand the individual choice set during travel. They allow multitasking (doing several activities at the same time) or fragmentation (doing activities in fragmented places) as Moktharian and ali. pointed.

The controversial role of ICTs in travel raises the question of the travel time use. How do people use their travel time? In other words, what do they do during the period they travel? By focusing on rail passengers in Great Britain, Lyons, Jain and Holley (2007) have show that the many activities are performed by travelling such as sleeping, reading for leisure or not, working, studying, talking to other passengers, window gazing, listening to music, and so on. But these activities vary to a type of traveller to an other. Commuter, business traveller, leisure traveller haven't the same way to fulfil their travel time. With journey purpose, direction of travel, age, gender or journey duration are able to affect the activities performed during the journey.

These results show that the use of ICTs vary to a people to another. But, according to us, they are limited by the transportation mode chosen. In fact, train allows individuals to settle down in the journey. Appropriation of space and time are allowed by an important amount of time spend in. How do people do when they usually travel? This paper aims at focusing on everyday moves, on ordinary travels. Our concern is to examine more precisely the use of ICTs such as mobile phone, laptops, portable games consoles and all technologies linked with these devices: SMS, mail, games, video, etc. We would like to see which place ICTs take during travel? How they contribute to intensify travel time? Our intensification hypothesis is that to have ICTs while travelling allows individuals to perform more activities than without. Our second intensification hypothesis is that the more the individuals are equipped, the more they perform different activities.

2. Material and method

The use of ICT and more generally the use of travel time often focus on situations where multitasking is easier. For example, Lyons, Jain and Holley focused on the use of travel time y rail passengers in GB (2007). Train journey are interesting to be observed because their duration is long enough to allow individuals to perform different activities. Moreover, these journeys are more comfortable than bus or subway because people can easily be seated. To stand up is more a choice than a real lack of place. Last but not least, during such a travel, people are inactive or passive. After choosing their destination or their place, travellers don't have to drive. In fact, they are driven by somebody else: they don't take part in the process. That's why train is a good place to observe the activities performed during travelling, the way people fulfil their time. But these travels are not representative of the way most of the people ordinary travel, of how they move in their everyday life and therefore of which activities they performed. In France, the more used mode of transport is car (65% of travel in number in a weekly day, French National Transport and Travel Survey, 2008) before walk (22%) and public transports such as bus, underground, train (8%).

To represent this diversity of movement, we choose to observe how a representative sample of workers who ordinary travel. The choice of workers (except telecommuters) was done in order to take into account ordinary mobility. Focusing on everyday travels helps us to understand how people are able to develop routines, to fulfil a time they are used to. As pointed below, workers also use different transport modes to go at work, not only train but

also car, walk, public transports, etc. To observe the travel of workers helps to understand how they act during travel taking into account different travel modes. Moreover, the sample was composed by two different types of workers:

- fixed workers who have one identified work place
- mobile workers who travel to one work place to an other.

The purpose of the divide was to examine several degrees of frequency, importance of travel in work. By doing so, we would like to observe the way of travelling and using ICTs of people who are more used to, who are more likely to have professional and diversified uses of ICTs. To conclude on the sample selection, it's important to notify that the personal set of ICTs was not taking into account to choose interviewees. Equipment may vary but the interest was to know which kind of ICT people use according to the degree they travel.

A qualitative method has been chosen to discover the way people use ICTs during their ordinary travel. Qualitative methods are necessary when researchers want to "discover" uses which weren't studied before. In fact, in France, no study really focusing on the uses during travel time, especially in taking into account several transport modes. Moreover, the uses of ICT (travelling or not) often create fantasies which need to be tempered.

The method was based on story of everyday life based on story conception ("mise en récit") of P.Ricoeur. Interviews product the story of the activities during a whole day and have to focus especially on their travel (no matter the distance, the length, etc.). By doing so, people naturally build a coherent story of what they did and how, why they did so. The interviews give the personal point of view of people about situations they experienced or they live everyday. They can tell lie, hide some part of the whole story, don't give the objective truth. The idealized stories are likely to hide some reprehensible behaviour (phone when driving for example) or overestimated practices. But it doesn't really matter. First of all, contradictions are easily spotted on their speech. Secondly the story (or the tale) they give is always interesting, no matter they're lying or not. Interviewees pointed what it is really important according to them: ICTs utility when moving or not, existing or expected uses of travel, etc. A precision has to be done before expose the results of the study. The interviews were realized on 2007. Then results don't take into account the technological progress since (Iphone for example) or apparition of new uses related to new technologies. But, it appears our results and analyzes are still validated by illustrating how equipped mobility was likely to turn.

3. Is travel an empty time?

Are ICTs tools which induce a intensification of travel time use? This question is linked to the way of perceiving travel time. It's often seen in transport studies as a cost, a wasted time. ICTs may replace travel by allowing to perform activities through distances but they also transform this empty time in a productive one. But is travel time really empty? By asking it to individuals, it doesn't seem to. Numerous activities are performed during travelling. When you look at a representative sample of working people, the most important of these activities is driving. In France, car is the more used mode to move, to go at work, to leave on vacation or to go shopping. But driving appears to be often underestimated. Many interviewed people were surprised when we asked them which kind of activities they perform while going to a place to another:

- *What am I doing when I go to work? Driving!*
- *No other things?*
- *Ah except driving you mean?*
- *Yes.*

This driving activity is quite invisible but necessary to go to a place to an other. Other activities are as much as invisible. When people take train, bus or underground as their main mode of transport, they may seem to do nothing during moving. But their truth is a little different when they explain their behaviour:

Marie-Claire: *“I often sleep in the bus. I left home very early to go at work. To have a rest while going at work is a way to gain more sleeping time”*

Regis: *“when I go to work or I go back, I often think at work, what I gonna do during the day, the tasks I’ve to perform and the way I will do it, or I remembered what I did and then what I will have to do next... I kind of make my days’ planning”*

Yassine: *“when I don’t know the place, I take care of the stop, I’m preparing my professional meeting in my mind”*

Carlos: *“I like to dream when I’m moving. To dream at vacations, my life, those kind of stuff”*

Sneezing, anticipating, dreaming and many other activities are invisible from outside. We took the example of people who travel with public transport but people who drive are able to performed these kind of activities as well. All these activities participate to the non economic utility appraisal of travel done by individuals. They consider that travel time is a transition time or time-out time (Jain, Lyons, 2008). If travel time may be exhausting or difficult (Le Breton, 2008), individuals acknowledge its benefits even if they are not financial or economical. A large set of invisible activities participates to this state of fact. So we can argue more than travel time is not empty: its already fulfil with invisible and therefore underestimated activities. Then travel is an intense time even if considering activities which can be realized without tools and especially without ICTs.

4. ICTs as new tools to realize former activities

By taking into account equipped activities (activities which need an artefact or a support to be performed), others activities are performed during travel times: reading, listening music, writing, talking with someone, working, drawing, etc. These activities contribute to intensify travel time by allowing multitasking (Moktharian, Salomon, Handy, 2006). But, if ICTs are ways to do them, they are not the only mean. In fact, many other tools exist: books, newspaper, paper, pen, radio, etc. The lack of awareness of multitasking pointed by Kenyons and Lyons (2007) echoes with fantasised impacts of ICTs, especially mobiles ones. Multitasking during travel time is not new thanks to many mobiles and flexible devices like paper as K. O’Hara and ali. underlined (2002).

ICTs are not the only way to allow multitasking. Nonetheless, they give new abilities to perform it. More than creating new uses, mobile ICTs are new devices, new ways to realize activities which were already done by individuals. MP3 has replaced walkman but not the fact of listening music. Mobile laptop allows workers to write reports in train or plane but didn’t replace the fact that these people were already taking notes on paper sheets during their travel. If we focus on non communicating uses of ICT, allowed multitasking is not new.

As ways to communicate through spatial distances, ICTs such as mobile phones, laptops, SMS, mail, etc. give to individuals the ability to maintain a permanent link with their firm, clients, family, friends, etc. Then travel time can’t be considered as an isolated time anymore.

Here again considering travel time as isolated is not necessarily true. Many workers don't travel alone or, at least, not all the travel duration:

Cyril: *"We land off the house at the same time with my girl. We split at the middle of the journey. But it's a moment together I like to share it with her"*

Kenza: *"I grab my kids after school and then we go back at home. We speak about the day, their homework, and so on"*

Even if communicating during travel is not necessarily new, ICTs are ways to create a new telepresence everywhere people are located. But how do people communicate when they are travelling? How long? How often? Which ICT are they most likely to use? Answering to those questions is necessary to understand how far communicating uses are able creating more intense travel time.

5. Using ICTs to communicate during travel: a need of discretion

By asking people the way they use ICTs during travel, it appears that communicating uses are relied on the context of the travel. Do they drive or not? Are they alone or in a crowd? Do they have the ability to use their ICTs?

When people travel by cars, they often declare fewer activities than when they are travelling by train, underground, buses, or even plane. To drive mechanically reduce the ability to do others things or, at least, the legal right to. In fact, people are often reluctant to declare they are using their phone when they are driving. They prefer to lie rather than acknowledge they have dangerous behaviour on the road. But during interviews they don't long succeed in hiding it:

Karine: *"No, if I receive a call, I don't hang on. It's dangerous and forbidden by law [...] Last time, my mother called me, then I hanged on but I didn't stay on phone, I just said to wait until I stopped"*

Zohra: *"I try to avoid calling when I'm driving my bus. I just have a look and notice who's calling. If it's school, I take the call because of my children. It can be an emergency. But it is the only case"*

More often, they don't call but they answer if they are receiving a call, they are looking at their vocal or short text messages. While driving, the answer at a call is selective and short. If the call is an « emergency », especially related to children, they stop as soon as they can and then are able to call longer. Few acknowledged using hand free devices or the speaker function. But some did. In all case, they are frequent mobile workers who "eat the road" everyday. Mobile phones and the way to communicate on the same time allow them to cope with distance with their firm but also to call friends or family when they get bored.

In public transportations, synchronous communicating uses would like to be easier because people don't drive. But they are faced to other difficulties. First of all, the network is not sufficient or efficient enough to send emails, to connect to Internet or to have a phone call:

Romain: *"train is really not a good place: with phone, calls are cut all the time, it's the same with Internet"*

Sixtine: *“in underground, phone talks are stressful: quality of communication is very awful”*

The fear of being « cut » and the lost of time induced by many trials is sometimes a source of discouragement. People don't rather communicate when they can't do it to last. Plane is the more extreme example of this fact. All communicating devices must be switch off during the whole flight. If we set the hypothesis that these technological obstacles may not stay long thanks to technological progress, another barrier influences communicating uses of ICTs during travel: not being alone. Interviewed workers don't want to be disturbed or disturbing the other travellers while they're moving:

Sixtine: *“In public transports, [...] there is noise. It is not comfortable to talk about personal issues [...] To have a phone call in front of strangers who are reading their newspaper, it's embarrassing”*

Jocelyne: *“I don't like to call in TER [French short distances train]. There is too many people and it's noisy”*

Yassine: *“I cut off my cell phone. I dislike people who are calling then I try not doing the same”*

The normative pressure aims at escaping too audible activities such as phone calls. That's why people often hang on but briefly, “just to solve quickly a problem”. The normative look of other people, the will not to share personal matters in front of strangers, the fear of being raped are reasons mentioned not to use hand phone to provide calls. People explain by the same reasons why they prefer to use asynchronous or discrete ICTs such as SMS, email, IM, etc. to communicate as Yassine declared:

“In underground I rather prefer to send text messages. I don't like to talk in front of other people. Texting is easier”

Its also help to understand why the main declared uses in public transportations are non-communicating ones such as listening MP3, playing videogames, read mails (and just read them), etc. Theses uses are discrete, invisible or inaudible. This is one of the limits of an extended use of ICT anytime, anywhere. People can't afford to communicate through phone according to the situation they are faced. Social pressures, social, legal or technical norms prevent intensive use of several ICTs (especially phone but not only).

6. Required flexibility of ITC to fit each step of travel: a contextual dependence of uses

Discrete communicating uses or non communicating uses are often more flexible than communicating ones when people are physically moving. People are able to perform them at each step of the travel or to stop them easily. Our data set is not new (2007) but these results give explanation (or a part of) of the Iphone's success story in France. Its ergonomic and the reunion of several functions in one tool make the Iphone one of the most suitable device to equip travel of everyday workers.

People need flexible ICT to fit their travel. As other mobile tools used before, the need of flexibility is related to the characteristics of the travel itself. A travel is composed by different steps such as:

- Move phases with the main transport mode declared (car, bus, train, underground, walk)
- Stop phases such as waiting (after a bus, before taking a fly, in traffic jam).
- Transition phases when people switch to an mode of transport to an other. These phases are often walk ones (to go at the parking lot, to go at the bus station, etc.)

These steps influence the way ICT are used during travel. First of all, stop phases are often considered as moments to give a phone call, to get or answering email, etc. The lack of movement explains a more intense use of ICT during this kind of phase. The use of ICT while driving or communicating ICT while flying will become difficult or impossible for a (long) period. In a second time, transition phases require the active participation of people in order to driving themselves to their next destination. The change of mode and the walk imply to focus their attention. Then activities which required it have to be stopped for a short while or permanently. It is especially the case when interviewed workers travel by public transport. The activities performed and especially those with ICTs need to be easily interrupted in case of change. At least, during transition phase, people are more able to perform activities which require less attention such as listening music. To listen at MP3 is possible with continuity, without interruption because people are able to take care where they're going. Phoning or read a paper, a text message are also possible (especially if the people on line or the ridden document give the way) but not continuously. In the main phase of the travel, the moving ones, we have already seen how the use of ICTs is dependant of the context of the move. Here again the need of focusing on the way take a leading part. People are able to perform fewer activities when they are driving than when they are on the train. Of course, ICT can equip their mobility but their extended use depends on several criteria. As for transition phases, the need of focalization on the way reduces the range of ICTs usable in a car. That is why radio or GPS are the most used ICTs when people drive. They are less disturbing or they help the driver (to indicate congestion or to find the way).

The context of travel time and its different steps influence the way this time is used and the uses of ICTs in it. But this context is not only related to the mode of transport or to one of these steps especially. The private and professional context of the traveller himself influences travel time, its uses and ICTs ones. Having kids, living far away from work are related to the personal context of individuals. But it may influence the way of travelling as seen before. When workers are frequently travellers, they spend a higher amount of time in travel. In their case, the three former phases are more likely frequent but also longer. That's why the number or activities they perform during travel and each phase of it is often higher than other workers. Mobile workers often use ICT to fulfil their travels as work tool or as leisure one: their ICTs uses are much more diversified than fixed workers' ones.

ICTs used during travel time may be seen as a source of intensification of this time, especially for mobile workers. If they are more likely to settle down and have time to deploy more devices or at least less flexible ones. Nonetheless these workers seem to look at flexibility too but in other ways. First of all, mobile ICTs are not really portable or not without difficulty: their number (laptop, gps, cellphone, etc.) and all their accessories (extra battery, chargers, etc.):

Jocelyne: "Wait! I have a PDA, 3 cell phones, a laptop, a calculator, etc. It's unbearable to carry all those stuffs"

Here again technological progress, convergence of ICT and then the ability to proceed different activities with one tool (smart phone for example) may help the people who used

them to gain flexibility. But, if mobile workers are more likely to use ICTs during travel, do they use them? If their uses are more intense than fixed workers, are there differences between highly equipped mobile workers and less equipped ones? The more equipped often are the more autonomous ones such as managers, consultants. The less equipped (only a cellphone for most of all) as technicians, labourer, sales rep, etc. are often less autonomous, more supervised by daily calls or meetings for example. But the most equipped ones develop many strategies to stay quiet when they are moving. To be on the move is often an excuse not to communicate or to choose when they want to:

Max: *“I say to my customers to send me emails rather than call me. I’m not always available, reachable: meeting, professional travels, etc.”*

Cyril: *“When I go out my region [Île-de-France], I have not the same rhythm. Even if the day is longer, often 12 hours, I have the feeling of doing nothing. I more likely shut down my hand phone, I don’t look at my email... I’m not there, I’m too far to be really useful. And the firm goes well without me.”*

Yolande: *“The people I take care have not my cell phone number. They only can reach the secretary. I’m not always available and I don’t want to be disturbed all the time. It is more efficient because the secretary often can deal with their demand. If it’s not an emergency, they can wait and sometimes they solve it by themselves”*

In fact, uses of ubiquity offered by ICTs may be possible but is not always researched. In fact, most of the time, mobile workers try to avoid professional or even personal communication in order to stay quiet. Asynchronous tools as written or voice messages allow individuals to escape communications. The strategies are based on the flexibility of devices but also on the rigid context of transportation itself.

7. Conclusion

According to these results, it appears that uses of ICTs are embedded on the personal, professional and moving context of travels. If ICTs offer to individual the ability to perform many activities while travelling, their intensification role needs to be balanced. First of all, travel is not an empty time. Many authors already show it but it is useful to insist on it. Many activities are already performed during travel with or without ICT. If we focus on activities using ICTs, they are very specific. Communicating uses, especially vocal ones, are often reduced no matter the considered mode of transport. Non communicating uses are most common because less visible or audible and because they give a new form to activities which were performed before. To fit the different contexts and phase of travel, ICTs must be conceived as flexible. Finally, intensification doesn’t appear clearly, even if looking at mobile workers.

If the result of its study may appear a little old, they remain important because they show that individuals have many practices when they are moving and these practices don’t necessarily fulfil the travel time as much as researchers or firms hope. We can’t deny that practices are changing, new uses especially of ICT are appearing. But it will take time to figure out how people will develop new uses, will learn to use the tools the way they want. The use of mobile ICT during travel time has surely changed it but there is no such thing as a revolution. Changes are coming but incrementally.

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