SELF-ASSESSMENT, QUESTIONNAIRES AND MEMORY TESTS IN A SIMULATED DRIVING TASK

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Abstract

This paper presents some results of an experiment on attention and decision making, correlated to a perceptive and memorizing exploration (cognitive and conative tests and neuropsychological measurements) carried out during a simulated driving task in a magnetoencephalography environment (MEG). MEG data are available in Fort & Delpuech and Fort & al. [1, 2]. Technical aspects of the simulation are presented in Foliot & al. [3]. Each subject answered questions and perform four kinds of testing in order to determine the psychological effect of a double task (paying attention to radio broadcasts) on attention while driving: a) General self-assessment, to evaluate internal states before and after the experiment;
b) Evaluations on perceived "*task difficulty*" and "*tiredness*" after each of 18 driving sessions, as well as short-term memory on radio contents (in the double task condition only); c) Incident long-term memorizing (visual recognition and hearing recall); d) Finally, a debriefing questionnaire to assess to the subjective awareness of double task (DT) effects on attention while driving.

Key-words

Attention – Simple Task (ST) & Double Task (DT) – Visual recognition – Hearing recall – Self-assessment – Subjective perception

1. Introduction

This paper concerns a program of the *Agence Nationale de la Recherche* (ANR)[1] about the exploration of double task effects on attention and decision-making during a simulated driving experiment. These effects are studied in three different fields: Central Nervous System (CNS), by means of magnetoencephalography (MEG[2]), Autonomic Nervous System (ANS), by means of sensors, especially electrodermal activity[3], and psychological field, by means of self assessments, tests and questionnaires.

In this paper, only psychological results are presented as indicated by the headline. The reader can consult Foliot & al. [3], for technical details and Fort & al. [1, 2], for a selection of results from MEG data[4]. Data about SNA measurement will appear in the final report of the DACOTA project; for a theoretical development on neuropsychology of attention, see Jacquet-Andrieu & Martin [4] and Jacquet-Andrieu [5].

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[1] A Program of the *Agence Nationale de la Recherche* (ANR) / National Research Agency: ADEME n° 0566C76,
[2] MEG: Non-invasive and high performance system (275 Channels, spatial resolution = mm, temporal resolution = ms). The experiment is conducted in the CERMEP, INSERM, Bron (France).
[3] MMB (Micro Capteurs biomédicaux), Laboratoire de Physique de la Matière, UMR CNRS 5511 / INSA, Lyon, France & Laboratoire de la Performance Motrice, Mentale et du Matériel – EA 647 – Centre de Recherche et d'Innovation sur le Sport (CRIS), Université Lyon 1, Lyon, France.
[4] https://document.chalmers.se/workspaces/chalmers/safer/safer-seminars/2009-09-28-29-driver

2. Subjects, material and procedure

The protocol was applied to thirty subjects (21-30 years old). Inclusion requirements were numerous and restrictive : male subjects only, driver's license obtained since at least 3 years, a mean of 3000 km/year covered during the last 3 years… and all specific criteria associated with MEG studies (no metal in body, no claustrophobia) and brain exploration (no affection and/or medical treatment). Only half of 61 initial applicants were included.

The principal task is to drive a virtual car in a simulated environment projected on an amagnetic screen (see [3]) by means of steering wheel, blinker, accelerator and brake. Two conditions with a main group of 24 subjects are presented: in the first (simple task, ST), the subject droved normally (he slows down and stops when a traffic light became orange and he respects road signals and direction indicators) with a radio broadcast background that he can ignore (principal task alone). In the second condition (double task, DT1), the subject droved and respects road signs but he also to paid attention to the radio broadcast, in order to answer three questions. These questions are asked to him before the beginning of each driving scenario and he has to find the answers during the driving session. The questions are asked again at the end of the scenario and the subject provides accurate answers (short-term memorising test).

To respect MEG constraints, in each condition, all kind of *stimulus* (traffic lights, direction road signs…) is replicated 50 times. So, each subject has to perform 18 *scenarii*, 9 under ST instructions and 9 under DT instructions. A *scenario* or session included about 6 orange traffic lights and 6 direction – left or right – road signs). Each session lasts 5 minutes; ST and DT *scenarii* are alternated. Thirteen of the subjects start with a DT condition and eleven with a ST one (see below for the 6 remaining subjects).

Twenty different *scenarii* were constructed beforehand by means of a cartographic software (2 are used in an initial training phase). In fourteen of them, a specific object appeared in the setting, to prepare memorising tests.

Sixteen radio broadcasts were selected for auditory background, and three questions / answers pairs referred to their content (see Table 2 below). An unexpected change in the experimental design (in order to obtain enough data, the number of needed driving *scenarii* moved from 16 to 18) led to use two of them twice during the experiment, one in a ST and DT conditions, respectively. Results were corrected at the time of the analysis to exclude response data obtained on the second occurrence.

Scenarii are presented in a different order for each subject as well as the radio broadcasts.

For six subjects (out of 30), the experimental instructions were slightly modified. Instead of DT sessions (driving + listening a radio broadcast in order to find answers to the 3 questions, called here "DT1"), they droved as if they were in 9 different contexts (role-playing condition called here "DT2" or "GOAL"), respecting the driving code. This new condition is supposed to implement mechanisms of appropriation like representation, identification and desire. For example, "*You are driving towards the station to catch a train, and you are very late.*", "*You are driving just like your favourite hero in a detective movie, and you are in pursuit of a criminal*."… This explorative group is conceived to detect possible differences in task performance (driving) and individual responses (neurological, physiological & psychological) between a classical DT condition and a role-playing condition. As for the subjects of the main group (24), conditions are alternated between ST instructions (the same as for the main group: 9 sessions) and role instructions (9 sessions with 9 different roles to play). This group is also put through two incidental hearing recall tests (one in a ST condition and one in a "role 3

condition") and its performances are compared to those of the informed subjects (24 others submitted to DT1 condition).

During the experiment, the subject has to answer some questions and tests in order to determine the effect of the experimentation on internal state and the effect of a DT on information processing while driving (judgment and memorizing).

First, at the beginning and ending of the experiment, questions are asked, on the subject's general state (nervousness, tiredness, weariness, motivation, well-being) using a five-point semantic scales (TABLE 1), to assess the psychological repercussions of taking part in the experiment.

DPsy-TABLE. 1: ***Scales used***

a	Nervous	1	2	3	4	Relaxed
b	Tired	1	2	3	4	Rested
c	Weary	1	2	3	4	Enthusiastic
d	Not motivated	1	2	3	4	Motivated
e	Ill at ease	1	2	3	4	At ease

Secondly, after each driving session, the subject expresses the degree of his "*tiredness*" and the "*difficulty*" of the task on a five-point scale (Tired 1 to 5 Rested / Difficult 1 to 5 Easy). These questions are introduced to get to the subjective awareness of the DT effect, as a metacognitive knowledge or judgment (Flavell & Wellman, 1977 [6]; Noël, 1997 [7]; Nelson & Narens, 1990 [8]).

We considered that these subjective judgments show that subjects are aware of the difference of information processing and attention under DT condition *versus* ST condition: *i.e.*, *scenario* achieved under DT are supposed to be judged as more difficult and more tiresome than ST ones.

As mentioned above, a hearing recall test is applied in the DT1 condition, to check if the subject follows the DT instructions. For the 6 subjects of the "GOAL Group", only 2 incidental memorizing tests are applied, one after a ST condition and one after a DT2 condition (at unpredictable points of the experiment). Under DT1 conditions, subjects would be able to respond quite correctly to the questions because of a deliberate search for the associated responses during driving. A comparison with the "GOAL group" performance on unexpected tests should bring additional evidence.

Ultimately, at the time of debriefing, two unexpected (not announced to the subjects) recall tests were displayed. The first one concerns the visual environment of driving. The subject had to tell, for each of 42 objects, if "*he is sure that he has seen*" the object presented or "*sure that he has not seen it*" during the driving task (a third alternative admits "*don't know*" and "*not sure that he has seen it or not*"). Among those 42 objects, 14 were frequently presented (in each session), 14 were totally new (missing), and 14 were "rare" (once of the 18 driving sessions). Our hypothesis is that the "rare objects" encountered in the ST sessions would be better recognized than those encountered in the DT sessions, because of a necessary additional resource of attention to notice them: for each of these scooters, the subject has to tell, if he saw them during the experiment.

Appeared in all scenario / good response = "*seen*"

Never appeared / good response = "*not seen*"

Appeared once (in a ST session or DT session depending on individual protocols) / good response = "*seen*"

The other recall test concerned the radio broadcasts content (a question for each of the 16 broadcasts listened to during the experiment – the question is different from those already asked during the experiment). The hypothesis is that the broadcasts heard under DT conditions would be better memorized than those heard under ST condition (when the subject has not to pay attention to), thanks to the deliberate search for the three answers (intentional encoding under DT sessions). An example of questions is presented in TABLE 2.

TABLE 2: Questions used for the broadcast n° 6

Questions asked in DT session		
N° Q	**Questions**	**Expected answer**
Q1	In which countries Bjork gave a show on summer 2007?	**Switzerland and France**
Q2	Which instruments dominate in the last album of Bjok?	**Brass instruments and drums**
Q3	Which is the town of the Furia Festival?	**Cergy-Pontoise**
Question asked in the Long-term memory testing		
	In which Town Bjok gave a show on august, 23?	Nîmes

Finally, a debriefing questionnaire was applied in order to assess the subject's awareness on DT psychological effect on attention while driving. It consists of about thirty assertions for which the subject has to make an agreement assessment on a 4-point scale (*Do not agree at all* 1 to 4 *Fully agree*).

The experiment lasted from 2.5 to 3 hours including: setting up (30-40'), training (15-20'), driving sessions, STM test and assessments (90-100'), debriefing and visual and hearing recall tests (15-20').

3. Results based on criteria of inclusion (half of 61 initial applicants: 30 subjects)

3.1. Short-term memory performance: recall of radio content

Memory score in DT sessions was computed by giving 1 point per correct answer (3 per session); so, in each driving session under DT condition, the maximum score was 3 points and the maximum total score is 27 (9 sessions). The final performance was the total correct answers related to maximum.

Answers to questions were accurate in 77 % of cases, showing that subjects paid attention to radio; comparatively, the "GOAL group" score is 22 % in the first and totally unexpected test, and 53 % in the second and a little more predictable test. These data confirmed that under the DT1 condition, the subject is attentive to radio broadcast (*i.e.* he applies the DT instructions).

However differences, between individuals are important (sd = 0.12; minimal score = 0.37; maximal score = 0.95), suggesting that there are differences in the subjective decision of paying attention to the radio broadcasts, while performing the driving task. The section 3.5 below, shows that for some subjects, the driving task is considered as the principal one while for others, it is the recall task. Then, these results may come from the relative importance attributed by subjects to each task, despite the instructions advising the subject to focus on the driving task (signal respect).

3.2. General Self-assessments

DPsy -TABLE. 2: ***Experiment effect on subjective self-assessments. Comparison between «before/after examination» assessments***

Scale	Values	Beginning	Ending	difference	sign
a nervousness	Mean Std-dev.	3.43 0.73	3.53 0.56	+0.10 t=0.71	Non sign.
b tiredness	Mean Std-dev.	3.27 0.86	2.48 0.98	-0.78 t=-4.23	P<.0005
c weariness	Mean Std-dev.	3.53 0.63	2.97 0.89	-0.57 t=-3.20	P<.0025
d motivation	Mean Std-dev.	3.73 0.52	3.27 0.74	-0.47 t=-3.50	P<.001
e Well-being	Mean Std-dev.	3.40 0.72	3.67 0.61	0.27 t=+2.11	P<.025

Assessments varied significantly on 4 of the 5-point scale (TABLE 3). The experiment hasn't real effect on subjective nervousness. However, it generated "*tiredness*", "*weariness*" and a "*motivation decline*". The subject's well-being expressed is more important at the end of the experiment than at the beginning, suggesting a stress decrease as subjects became familiar with the experiment and achieved it.

These results show, as it is confirmed by debriefing responses (see Section 3.5.) and other evidences (see Section 3.3.), that the experiment is quite lengthy, boring and tiring.

3.3. "Task difficulty" and "tiredness" assessments after each driving session

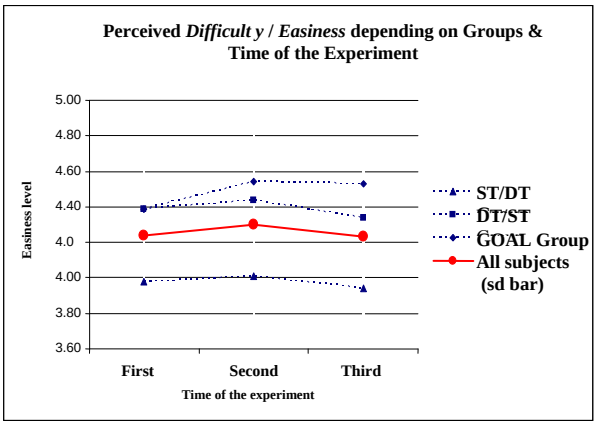
3.3.1. Experience (time) effect on assessments (5-point scale)

The purpose was to check if subjective assessments of "*difficulty perception*" and "*tiredness perception*", measured after each of the 18 driving sessions, evolved over time, index of an increasing mental-load. The set of judgments is divided in three parts, each comprising 6 consecutive *scenarii*; among these 6 *scenarii*, 3 are performed in ST and 3 in DT2 because of the alternation of conditions. For each subject, the mean is computed for each cluster of *scenarii*.

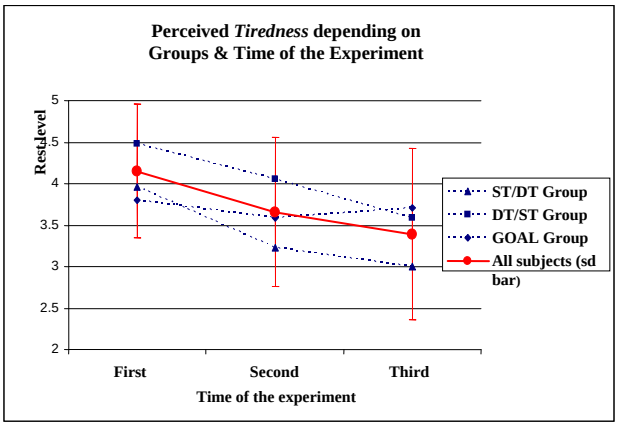
An ANOVA is computed on each variable (*tiredness* and *difficulty*) for the three groups of subjects (GR)[5]. Possible differences between groups are not considered here. The "*task easiness* / *difficulty*" perception didn't evolve over time (F = 0.18, ns), while the "*tiredness*" perception increased with time (F = 5.33, p < .01) [*cf*. Graph. 1 & 2].

[5] The three groups of subjects are: 1) 11 subjects beginning the experiment with a ST; 2) 13 subjects beginning the experiment with a DT1; 3) 6 subjects with modified instructions (GOAL or role).

GRAPH. 1 : "Easiness / Difficulty perception"



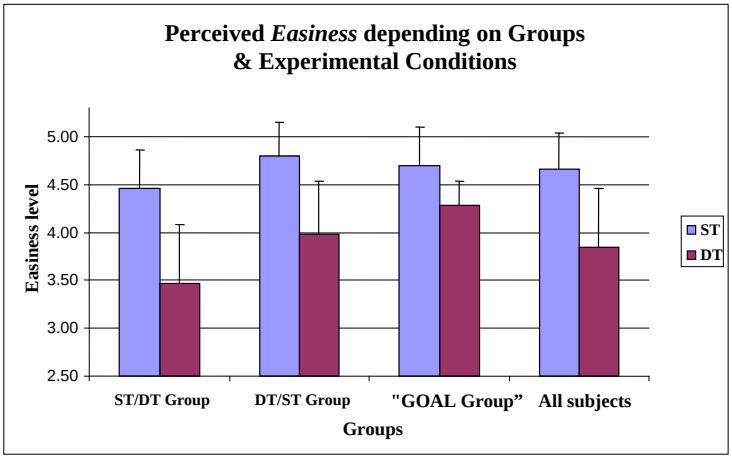
GRAPH. 2: "Tiredness perception"



3.3.2. Double task effect on assessments (5-point scale)

a) *Easiness* perception

GRAPH 3: "Easiness / Difficulty" *perception*



For each subject and condition (ST/DT), the average of "*easiness*" evaluations was computed with the 5-point scale (1 = difficult, 5 = easy); so, there were two values to compare per subject. If the subject said that ST was easier to perform, the mean on ST might be greater than the mean on DT.

The comparison was performed by a paired two-sample t-test. The t-value on all subjects was

9.08 (df = 29, p <.0005), meaning that the subjects evoked more difficulties in performing *scenarii* under DT instructions. Results were similar within each group, those beginning by a ST and those beginning by a DT. However, the 6 subjects of the "GOAL group" showed a smaller effect. The additional task in this group ("*Drive as if you are in a realistic condition…*") seems easier than the DT: to find three answers in the radio broadcasts.

b) *Tiredness* perception

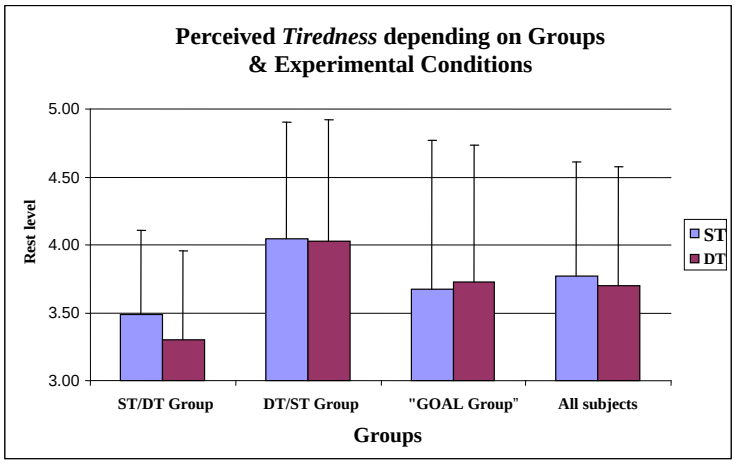
A similar analysis was performed on the "*tiredness*" assessment, noticed after each driving session: 5-point scale (1 = tired, 5 = rested) and two values per subject, one for the 9 ST conditions and one for the 9 DT conditions.

The t-value on all 30 subjects is 2.12 (df = 29, p < .025): they were more tired after a DT condition.

However, this result arose from subjects who begun with a ST condition (GRAPH. 4). Comparisons within each group confirmed that the effect of DT on the "*tiredness*" perception is only present in this group (t(10) = 3.41, p < .005). The differences are not significant in the two other groups:

- Subjects who begun with a DT condition: t (12) = 0.56, ns
- Subjects of the "GOAL group": t (5) = − 0.85 ns

GRAPH 4: *"Tiredness" perception*



Then, the "*tiredness*" assessment applied better to the perception of the experiment length, while the task "*easiness*" assessment allowed a distinction between mental-load arising from DT *versus* ST. This result confirmed the efficacy of the "*easiness*" judgment to reflect mental representations (Ostrom & Gannon, 1996 [9]; Jouandeau & Combe-Pangaud, 1999 [10]; Combe-Pangaud, Martin & Jouandeau, 2001 [11]).

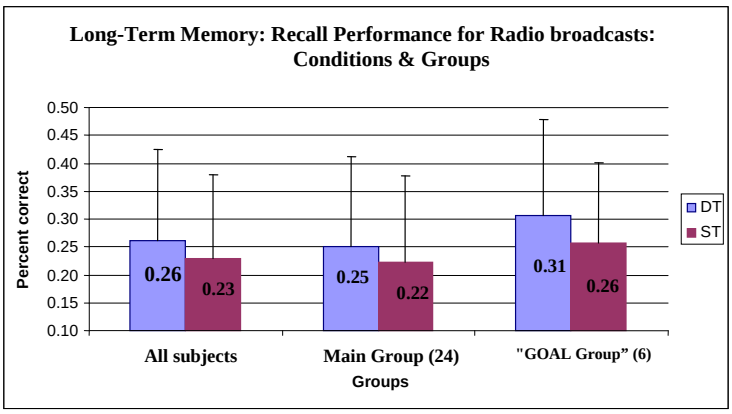
3.4. Long-term memory results

3.4.1. Double task effect on Long-Term Memory (LTM) for recall broadcasting content

Our hypothesis dealt with a better long-term recall of broadcasts when the subject listens to them in DT condition, because of more attention required to respond to the three questions asked before the driving session. The score was corrected by removing answers (correct or not) for the radio broadcasts which are listened twice or more during the experiment (due to experimental procedure). One point was attributed per correct answer and partial responses receives ¼, ½, 1/3 or 2/3 depending on the degree of accuracy.

The total recall score corresponded to the proportion of correct answers. For overall subjects (30), the mean score was 0.25 (sd = 0.12), a quarter of the maximum score. The result of interest is the score difference between the two encoding conditions (ST *versus* DT: GRAPH. 5).

GRAPH 5: LTM for radio (DT *versus* ST)



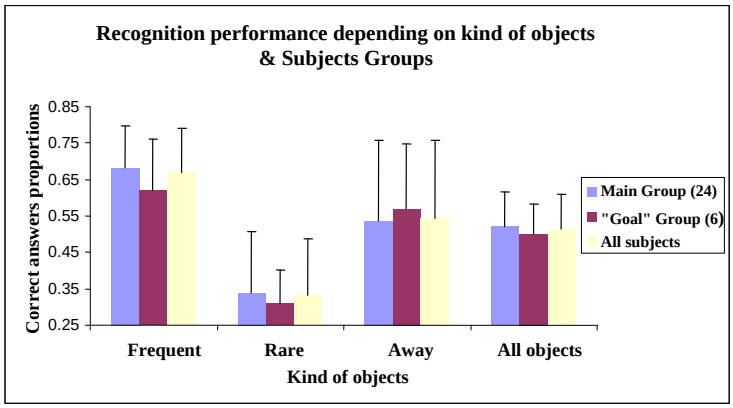
Data tended to confirm the hypothesis (DT > ST) but the difference was not significant ($t(29) = 0.84$, ns). There was no difference between the two groups of subjects and an apparent better score in the "GOAL group" was despised in the two experimental conditions (ST: $t(28) = -0.50$, ns; DT : $t(28) = -0.73$, ns); However, these results should be taken with caution because of the small number of subjects.

3.4.2. Double task (DT) effect on LTM for objects

In this assay, the subject has to recognise objects of the driving simulation environment: a recognition performance (*see* § **2. Subjects, material and procedure**).

Among the 42 objects used for test:
- 14 objects appeared frequently during the experiment
- 14 objects, once in one scenario
- 14 objects never appear (see GRAPH. 6)

GRAPH 6: *Recognition performance*



On overall 30 subjects, proportion of correct answers was 0.51.

The results showed that frequent objects are correctly recognized (see GRAPH. 6). New objects are also correctly recognized as missing in the driving scenes.

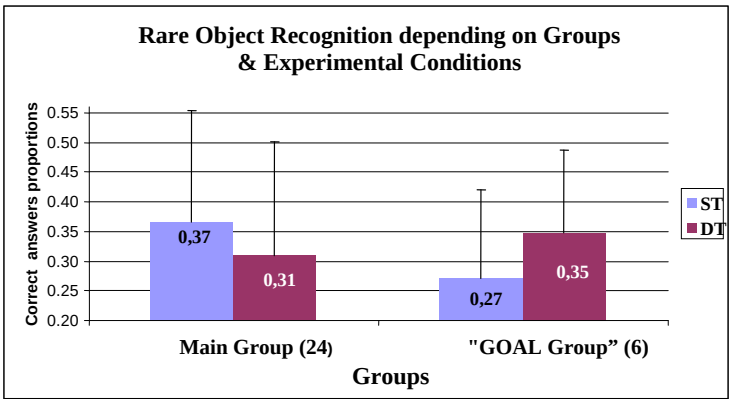
The recognition for "rare objects" was the worse score: they were usually recognized as "missing" (false answer). We can notice that the mean recognition score was near chance level *i.e.* 1/3. Differences between groups are small but the comparison is difficult because of the unevenness of group sizes.

The initial hypothesis about rare objects recognition is:

Rare objects might be better recognized when encoded under the ST condition. Under the DT condition, attention will mainly concern the hearing modality (at the expense of visual canal).

The two groups seem to borrow different behaviours concerning LTM of rare objects (see GRAPH. 7), although respective means are not very different (floor effect?)

GRAPH. 7: ***Recognition of rare objects***



The following analysis concerned the 24 subjects from the main group.

A paired two-sample t-test showed a tendency ($t(23) = 1.53$, $p < 10$ unilateral test) to difference between the recognition performance of rare objects encountered in ST *versus* DT, which confirms the hypothesis : recognition seems better when unique objects have been presented in a ST condition.

Data obtained among the six subjects from the "GOAL group" appear as surprising since the effect seems to be reversed: a better recognition of rare objects under DT conditions, perhaps due to more (or better) attention allocated to the environment under these instructions. However we may be cautious about this dataset, because of small sample size and floor effect in performance.

3.5. Debriefing questionnaire

After the experiment, subjects had to give their level of agreement for a set of assertions (first person written sentences) using a 4-level scale (1- complete disagreement; 4- complete agreement). These propositions are constructed in order to check the awareness on manipulated variables, particularly the effect of DT on attention and decision-making processes.

The participants' awareness is proved by their responses (for detail, see appendix). Subjects said that DT conditions require more attention. We have also note that *scenarii* achieved under DT seem shorter, less monotonous, and more difficult, which confirms data on easiness/difficulty assessments. Opinions are mixed concerning "*pleasure*" and "*safety*" associated with DT *versus* ST *scenarii*.

4. Synthesis/Conclusion

On the whole, the experiment was relatively gruelling for the subjects, despite their true determination and pleasure to participate. General subjective assessments (measured before and after examination) and perceived tiredness (measured after each driving session) were supporting this fact.

Sessions realised under simple task (ST) instructions were assessed as easier than under double task (DT) instructions; discrimination on "perceived easiness" between ST and DT2 (GOAL condition) was however less obvious. "Perceived easiness" is a better index of DT

effect than “perceived tiredness”, which applied more to duration effects and painful aspects of the experiment.

There is no obvious effect of DT on LTM performance for radio broadcasting content. By contrast, objects encountered once during the experiment tend to be more easily recognized if they belonged to a ST *versus* DT session.

The experiment seems to have been less tiresome for the 6 subjects from the “GOAL group”, but the instructions they received were not a real double task; the “GOAL” condition (DT2) seems not to divide drivers" attention as much as the condition of listening to an audio broadcast in order to answer three different questions (DT1). A possible explanation is that, in the first case, the attributed goal was part of the main driving task while the listening / memorizing task was dissociated from driving (attention is extended on a larger perceptive and cognitive spectrum). Finally, caution is necessary in relation to data of the “GOAL group” due to important modifications in instructions, although they are of great interest.

5. References

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APPENDIX

Responses on Debriefing Questionnaire

Responses 1 & 2: "disagreement" – Responses 3 & 4 "agreement"

"Constancy of the attention all through the task"
Divided opinions : 43% of the subjects tend to think that attention has not been constant
"Attention falling during the experiment"
Almost 2/3 of the subjects (19/30) say that their attention fell during the experiment (responses 3 and 4)
"Surprise due to certain events"
Certain events have surprised most of the subjects (80%): they mention the obstacles introduced in certain *scenarii.*
"Giving oneself some goals"
Many subjects (70%) say they gave themselves some goals : - Remembering the answers to the questions : mentioned 10 times - Driving well, obeying the orders : mentioned 9 times - being realistic : mentioned 2 times - paying attention to the pedestrians : mentioned 1 time - being careful to the unexpected : mentioned 1 time - taking a rest when no question : mentioned 1 time - being involved : mentioned 1 time - better managing certain turnings while in a hurry : being involved : mentioned 1 time The responses of the subjects obey the orders of the experimenter and they really involved themselves in the DT1 (listening).
"Feeling like giving up in the midfe of the experiment"
Only 6/30 of the subjects mentioned a tiredness due to the length, tiredness, lack of comfort, movements.
"Falling of motivation during the experiment"
Although very few recognized it (7/30 tick the responses 3 and 4), the evaluations on a scale between the beginning and ending of the experiment clearly show a true falling of motivation, that one can easily understand.
"Trying to go as fast as possible"
- One can see a clear distinction between the two groups: main corpus alternating with STT/DT1 *versus* Group of 6 subjects (ST/DT2). - In the main corpus, the subjects tend to say that they have not tried to go as fast as possible. : 70% of the responses rather show a disagreement between their behaviour and that assertion. - In the group "GOAL" (DT2), 50% of the subjects (3) acknowledge the fact that they were following the objective of rapidity: it is linked with the aspect of emergency ("driving like a pilot of racing", "having to rush someone to hospital").
"Increase of tiredness during the experiment"
Divided opinions: 16/30 of the subjects mention an increase of their tiredness. The two groups seem to differentiate themselves from each other: 2/6 of the subjects of the group "GOAL" are feeling signs of tiredness (33% *versus* 58% in the main corpus). The menta- load seems different for the DT2: they feel much more motivated.
"Influence of the environment"
The environment has not really got any emphasis on the subjects (≅ 90% of responses 1 or 2 on the scale).
"Easiness to obey the orders"
90% of the subjects say the orders are easy to obey (80% of the responses 4)
"Probability of the events"
72% of the subjects consider that the events are predictable: a dozen of them have noticed that the traffic lights stays green when there is a change of direction and that they often turn red on a straight line.
"Locating the regularities"
67% agree to that *item* (*cf.* previous *item*) - Duration and starting of the traffic lights: 9 times - Same rounds: 5 times - Scenery, cars stopped, pedestrians: 3 times - When one follows a vehicle, the traffic lights turn red: 1 time
"Simplicity of the driving of the simulator"
On the whole, the driving is said to be simple, but we can note some interesting remarks: - Problems of direction: 4 times - Delay time: 2 times - The indicator is a bit far: 1 time - Condition far from reality: 1 time - Dead angle: 1 time

"I was expecting something different"	
Several subjects (8) say they had been expecting something different:	
- More unexpected events, traps:	4 times
- More realism:	3 times
- A more diversified environment:	1 time
"The simulation is realistic"	
Divided opinions: half of the subjects choose the responses 1 or 2.	
- Little traffic, bustle in the streets:	5 times
- Motionless graphics, monotonous environment, lack of fluidity :	4 times
- Direction or pedals "not realistic":	3 times
- Breaks too slow, time of reaction badly rendered:	2 times
- Lack of angles of vision (mirrors, field of vision reduced):	2 times
- Good graphics:	2 times
- New cars:	2 times
- Vehicles easy to handle:	1 time
- The car always runs as if reversing:	1 time
- The radio talks about recent events:	1 time
- Events little frequent:	1 time
- Too binary for the breaking and acceleration:	1 time
- Feeling of speed hard to feel:	1 time
- Nothing to do with real driving:	1 time
"Resemblance with a video game"	
Rather agree with that comparison (67%): a lot of subjects underline the monotony, the lack of realism and unexpected events, the absence of notion of game which allows to differentiate with a real videogame.	
"I paid a lot of attention to the broadcastings"	
The data are reversed between the two groups: the subjects of the "GOAL" Group (DT2) were not asked to listen to broadcastings: 8 subjects out of 24 (main corpus) say they did not pay attention to the broadcastings *vs* 4/6 in the other group.	
"The DT requires a lot of attention"	
One can distinguish the two groups according to DT1 (radio listening) & DT 2 (particular objective of driving). The first subjects (96%) say the task requires a lot of attention *vs* 17% for the other one. That confirms the data we have got about "perceived easiness" of the task between the two conditions.	
"The memorizing task disturbs that of driving (corpus)"	
The subjects rather disagree with that statement (14/23)	
"The driving task disturbs that of memorizing (corpus)"	
17/24 say "yes". The memorizing task seems more difficult than that of driving: less automatism so more attention requested.	
"The task of driving has been preferred to that of radio listening (corpus)"	
Divided opinions: 13/24 subjects say they have preferred the task of driving.	
"Comparison of the routes between DT and ST" (corpus)	
The routes in DT prove to be : - shorter (16/23); - less monotonous (21/24); - more difficult (18/23); which confirms the data analysing "perceived easiness"; - divided opinions regarding the pleasure (13/24 find them less comfortable); - divided opinions regarding the level of associated risk (13/24 find them more risky).	
"The broadcastings are disturbing the carrying out of the task" ("GOAL").	
Most of the subjects (5/6), say they have not been disturbed by the broadcastings, which they did not have to remember.	
"The driving is disturbed during the simulation exercise (DT2)" ("GOAL")	
Most subjects agree with that (4/6): all of them say they focused on the orders of simulation exercise ("GOAL").	
"Having preferred the task of driving for assigned aim" ("GOAL")	
Most subjects say "no" (5/6): they have preferred the "GOAL" to follow, to the extent of sometimes not following the driving code. The distances with "GOAL" (DT2) appear: - to be shorter (5/6) - less monotonous (6/6) - more difficult (5/6) - less pleasant (5/6) - more risky (6/6). On the whole, the responses of those subjective assessments are coherent with those collected in the main corpus of subjects but are much more contrasting.	