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# Measurement of concepts based on the media module of the ESS

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## Abstract

Given the importance of the media in all societies, the Central Coordinating Team of the European Social Survey (ESS) asked Ken Newton to propose a module for Media use which could be used in the core questionnaire of the ESS. Together with the Central Coordinating Team of the ESS, a module for media use has been developed. This module allows the measurement of the “total time spent on the traditional media” (TV, Radio and Newspapers), “the total time spent on political issues and current affairs in the media” and “the total time spent for other purposes in the media”. Besides that one can measure the “Interest of people for political issues in the media”. These measures are evaluated in this report. The questions asked are:

- How are these concepts operationalized?
- Can these measures be compared across countries?
- How good are these measures and do we need these aggregated variables or should we rely on the separate measures of the use of different media?
- How should we compute optimal composite scores for these concepts?
- How can we analyze the relationships of these variables with other variables taking into account the measurement errors in these variables

For the concepts which have been evaluated in a positive way “ Use of the media for political issues”, “the use of the media for entertainment” and “the interest in political issues in the media the concepts” the scores of all respondents for these concepts have been computed and placed in a data file. This data file can be added to the ESS data files and can be used for further analysis<sup>1</sup>.

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## Introduction

Given the importance of the media in all societies, the Central Coordinating Team of the European Social Survey (ESS) asked Ken Newton to propose a module for Media use which could be used in the core questionnaire of the ESS. In his paper for the ESS, Newton (2000) suggested that there are three main topics for a questionnaire on media use:

- a) Amount of media use. The aim was to ask respondents how often they use the different types of media.
- b) The purpose of its use. The media can be used because one is interested in politics, sports, culture, movies etc. So it is relevant to know for what purpose people use the media.
- c) Sources of information. It is also interesting to know which type of media is the main source of information for different topics.

The first decision in the design of the media use module was to clarify the type of media (traditional and/or new media) that should be taken into account. "Traditional media" mainly refers to television, radio and newspapers. In contrast, new forms of communication are primarily related to Internet, e-mail, websites of information and related communications. If both are used, do we treat traditional and new media equally or examine them separately? Newton commented on this issue:

"If television is driving out radio and the printed word, and if the newest digital multi-media communications are likely to further diminish the importance of newspapers, radio... then there is little point in wasting time on the old media. If, in a few years time, most people are surfing the web for information about buying a house or the weather forecast, then local radio and newspapers will have a very low impact. And if a large proportion of the population is on the web for business and private reasons, then advertising money is likely to follow them, so bringing about even more rapid change. The political impact of email and the web may be just as large". (Newton, 2000)

Given these comments it is a serious question whether the ESS should shift from traditional media to new media? However, one should decide on the basis of empirical data how fast these changes occur. Looking at the data from Eurobarometer 1999 and 2006 we get the picture presented in Table 1. In 1999, 71% of the respondents in the 15 countries in the European Union (EU) still looked at the news on the TV and 41% listened to news on the radio and followed the news in the newspaper on a daily basis.

	TV News <i>Daily</i>	Read Paper <i>Daily</i>	Radio News <i>Daily</i>
EU15, 1999	71%	41%	41%
EU25, Spring 2006	66%	35%	42%

Source: Eurobarometer

**Table 1:** Use of the news media in European Union countries

According to Newton's hypothesis, the percentage of daily time spent on news should decrease significantly from 1999 to 2006. Table 1 shows that the frequency has only slightly decreased: television and radio use for daily news decreased around 5%, and radio even increased 1% from 1999 to 2006. Since the old media is in general still heavily used by people, ignoring the traditional media would produce an important bias in the measurement of the media use. However, in a few years time any mass media survey should cover the old media alongside the new ones.

The next question to be answered when one would like to develop a module on media use concerns the purpose for which people use the media. Newton commented on this issue:

"Most forms of the mass media may be used for a wide variety of different purposes, not only for amount of media use itself. In fact few are like the cinema that has only one dominant purpose - entertainment. The rest - certainly newspapers, TV, radio, and the web - cover almost every area of human activity - news and current affairs, sport, leisure, arts, education, information, science, business, entertainment, gossip about public figures, and so on". (Newton, 2000)

In order to obtain the complete information about the media use of the respondents, one should know the types of programs people spend time on. Complex questionnaires like diaries have been developed especially to collect this information. However, such measures were not possible in the context of a general-purpose questionnaire, as the ESS aspired to be. There was limited space for the media use module.

Therefore, an effort was made by Newton and the ESS specialists to find a combination of the different aims of the module in one single approach. In Figure 1 you find a list of possible purposes for use of the media. Figure 2 presents a first suggestion to an integrated approach. The idea was to ask the people to specify how much time they spend for each purpose in each medium on a normal day. It would have been possible to ask about the last week or yesterday. The former approach is hampered by memory effects. The latter is rather incidental. Asking for a normal day is not a simple question but it seems a good compromise.

*Media can be used for different purposes, see the Media card. Can you estimate for how many minutes you use the (TV, Radio...) on a normal day for these different purposes?*

Media Card: Different purposes of use of the media:

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- entertainment = quizzes, lotteries, games, shows, ...

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- politics = news, actuality, political discussions

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- business = financial information, business information

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- sport = reports about sport events or previews

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- hobbies = gardening, home improvement, painting, holidays, ...

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- education = educational programs, science and technology

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- arts = movies, music, discussions about it

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Transformation of hours in minutes  
 1 hour = 60 minutes → 8 hours = 480 minutes

**Figure 1:** Proposal of design for media use and purpose of its use answers

	Entertainment	Politics	Business	Sport	Hobbies	Education	The arts
Television							
Radio							
Newspaper							
Magazine							
Internet							
E-mail							
Teletext							

**Figure 2:** Response matrix for media use and purpose of its use

This approach is attractive because adding up the answers in a row one would get the media use of a person for a specific type of medium. For instance, summing the time spent for each purpose for television, one can easily obtain the total time spent on television and this will be correct if all purposes are asked. The ratio of the amount in a cell in each row over the total of the row, gives the relative importance of the different purposes of use for each medium. This information could be used for trend analysis and for analysis at an individual level.

Another option is to add the answers in the columns and the result is the use of the media for different purposes at an individual level. This also can be used for trend analysis and individual analysis. With this straight computation in the matrix structure one can obtain the source of information for each topic. For instance, the cells of the column for politics can be compared with the other topics in order to know which type of media they use for the different purposes. For these comparisons one can use the absolute values or the proportion of the time spent on the media for different purposes.

Although the approach is indeed very attractive, the matrix in Figure 2 requires a lot of time and may result in large errors (Slater 2004) because the respondents must give an estimate of time for each cell, which means 49 answers (7 rows x 7 columns) have to be given. In order to reduce the time, a simplification was suggested preserving the most important components of the approach. The final version of the ESS media use module was based on six questions. These questions are about the total time spent and the time spent on political issues and current affairs on the most used traditional media (television, radio and newspaper). Subtracting both approaches one can get the time spent in other issues in the traditional media. The focus is on political issues and current affairs because these variables can be related with several other ones in the ESS survey. The definitive questions for the media module in the ESS questionnaire for round 1 to round 4 are shown in Figure 3.

A1	On an average weekday, how much time in total do you generally spend watching television?	
	No time at all	00
	Less than ½ hour	01
	½ hour to 1 hour	02
	More than 1 hour, up to 1½ hours	03
	More than 1½ hours, up to 2 hours	04
	More than 2 hours, up to 2½ hours	05
	More than 2½ hours, up to 3 hours	06
	More than 3 hours	07
	(Don't know)	88
	<i>(filter if do not watch television)</i>	
A2	And again on an average weekday how much of your time watching television is generally spent watching news or programmes about <b>politics and current affairs</b> ?	
	Idem Scale	
A3	On an average weekday, how much time in total do you generally spend listening to the radio?	
	Idem Scale	
	<i>(filter if do not listen to radio)</i>	
A4	And again on an average weekday, how much of your time listening to the radio is generally spent listening to news or programmes about <b>politics and current affairs</b> ?	
	Idem Scale	
A5	On an average weekday, how much time in total do you generally spend reading the newspapers?	
	Idem Scale	
	<i>(filter if do not read newspapers)</i>	
A6	And how much of this time is generally spent reading about <b>politics and current affairs</b> ?	
	Idem Scale	

**Figure 3:** Questions for the media use module

It will be clear from Figure 3 that the ESS asks for exposure time. This concept should not be confused with attention, comprehension or retention (Slater 2004). The information we obtain is just an estimate of the time that the respondent spent watching television, listening to the radio or reading the news.

In the ESS media use module there is also a question requesting the total time spent on the new media (internet). However, there is no request on the total time

spent on politics and current affairs for that medium. Due to the lack of comparability with respect to the measurement of the new media use with the measurement of the use of the traditional media, we decided not to include this question in the operationalization of the different concepts for media use we are interested in; *Total Time spent on Political Issues in the Media* (TTPIM), *Total Time spent on Entertainment in the Media* (TTEM) and *Total Time spent in the Media* (TTM). This means that the measures are restricted to the use of the traditional media.

Another possibility of the media module is to measure the Interest in Political issues presented in the media. We denote this concept with IPIM. This concept is defined as the difference in attention people spend on political issues in the media.

In part 1 of this report we pay attention to the measurement of Total time spend at the media i.e. the three concepts TTPIM, TTEM and TTM while in part 2 we will discuss the quality of the measurement of IPIM. Finally in part 3 we will discuss suggestions for improvement of the measures based on the new developments in the media world.

Because of the fact that all concepts we want to evaluate require numeric calculations we start with an adjustment of the used scale for this purpose.

## **1 Selection of the response scale**

One of the problems in the data collection by questionnaires is the selection of the response scale that has to be used. Depending on this choice, the quality of the data can vary significantly. Therefore, in an ESS pilot study a MultiTrait MultiMethod experiment (Campbell & Fiske 1959) was done in order to estimate the validity and reliability of the possible alternatives. The purpose of the experiment was to select the best method for the core questionnaire of future ESS rounds. The MultiTrait MultiMethod (MTMM) design uses at least three traits, each measured with three different methods (Andrews 1984; Saris & Andrews 1991; Saris & Gallhofer 2007a). For these experiments the Split Ballot MTMM (SB-MTMM) design (Saris et al. 2004) was used. It is an alternative to the classical MTMM design (Andrews 1984).

Results from the pilot study in The Netherlands and United Kingdom were described by Saris & Gallhofer (2007b). They remarked that while the validities were approximately the same and high (.95 and higher) for all three methods there were considerable differences in the reliabilities. For all three traits the reliability of the “8 numerical categories” was the highest for both countries. The “numeric open question” method, which was based on hours and minutes, was clearly the worst for all three traits in both countries. Therefore the “8 numerical categories” method was used in the next ESS rounds.











































































































