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CONTEXTUALITY OF SURVEY RESPONSES AS A CHALLENGE TO THE
DEVELOPMENT OF QUESTIONNAIRE TESTING METHODS

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ABSTRACT

An individual does not reply to a single question without thinking about why and for what purpose the question has been asked. When a respondent has difficulty in interpreting a question he or she seeks help from different contextual hints. Apart from in the asked question itself, such hints can also be found in the offered response alternatives, earlier questions and the order in which the questions are presented on the questionnaire. A great deal of research information has been published about these contextual effects. (E.g. Sudman, Bradburn & Schwarz 1996, Schober 1999) Norbert Schwarz (1996) even states that survey interview respondents resort more to contexts in order to understand the meaning of a question than people do in an ordinary conversation where meanings can be discussed.

Today's survey methodology literature often treats contextual effects as external, disturbing factors that should be eliminated through questionnaire development. Yet, context can also be seen as a key comprehension link that facilitates human interaction, meaning that it is then not perceived as an external frame of a survey. A respondent is constantly drawing conclusions about the inquirer's intentions and motives and has different ideas of how his or her responses will be used. This means that the replies a respondent gives may reflect both his or her own assumptions of what the inquirer wants to know and what the respondent presumes the inquirer will do with the provided information. (E.g. Foddy 1995) Is it, therefore, sufficient to just develop questionnaires, or should information also be produced to help the interpretation of the results?

The paper discusses different ways of understanding contextual effects and presents a few methodological solutions and empirical answers to studying them.

Introduction

It was observed very early on that survey responses are strongly dependent on the context within which the questions are presented. As far back as 1944, Cantril proposed that every result should be tested by asking the same question in several different contexts. O'Muirchartaigh (1997, 2) is of the opinion that recognition of the context-dependency of survey responses is precisely the factor that has paved the way for later attempts on forming a clear theoretical frame of reference for understanding the response effects.

In the early stages of experimental research, context was regarded as an external influence. It was perceived as an error source in experimental designs, and had to be eliminated as far as possible. Standardisation of question presenting has been used in survey studies in an effort to eradicate such effects. The forming of study designs for a survey analysis is at least indirectly associated with the idea of experimental and control groups. Efforts are made to standardise the groups in respects of causes other than assumed ones. In a way, standardisation of the formulation of questions takes seriously the effects of context on the reliability of a survey and tries to standardise contextual effects. Obviously, this development phase is linked with the behaviourist idea that even today is still common in survey practices.

Later on, efforts were made to take context better into account in experimental designs and in their interpretations. The view according to which an individual is a being reacting mechanically to stimuli has had to gradually yield somewhat to explanations in which an individual is seen as capable of directing his or her own activity (Mixon 1974). Context is recognised as an element of the framework of a survey. Although survey environments are deemed to form their own kind of social context, the context is still perceived as an external interference factor.

Recent discussions about survey methodology have generally interpreted contextual effects this way. The effects have been viewed as having arisen from e.g. the question presented to the respondent, the given response alternatives, preceding questions on the questionnaire, or from question order (Sudman et al. 1996; Schwarz & Sudman 1992). For example, the book on contextual effects edited by Schwarz and Sudman (1992) concentrates mainly on the question order and response alternatives.

In discourse about survey methodology contextual effects are usually understood as meaning that the respondent understands a question in different ways depending on the context in which it is presented. Respondents generally try to do their best to answer the questions they are asked. Where they find it difficult to interpret a question they seek all possible contextual cues to help them interpret it. They can resort to diverse cues originating from: 1) the formulation of a question, 2) the given response alternatives and 3) previously asked questions and their answers to them. There is plenty of research information on how these cues can influence response distributions (Foddy 1995; Sudman et al. 1996).

Contextual effects arise because even after standardisation a survey interview is also an everyday interactive situation in which the discussing parties try to draw conclusions about each other's meanings. But in a survey interview, the respondents do not have the opportunity for the same kind of introductory dialogue about the other person's meanings as they would have in the case of an ordinary, everyday conversation (cf. Maynard, Houtkoop-Steenstra, Schaeffer & van der Zouwen 2002). Norbert Schwarz (1996) states that this difference makes survey respondents more dependent on the context of a question than they would be in an ordinary conversation in which meanings can be discussed. It is interesting that the more motivated a respondent is the more likely he or she is to seek support from matters that to the researcher seem irrelevant in order to understand the researcher's meaning. This leads to a diversity of interpretations of the purposes of the presented questions, because the respondents interpret the concepts and expressions of the questions in different ways (Schober 1999). The more ambiguous the semantic or pragmatic meaning of a question is, the more the respondents seek the reason for asking it from other contexts of the questionnaire or the data collecting situation (Sudman et al. 1996).

We will next discuss how the contextuality of survey answering could better be taken into account. We present two cases as an example of how we have studied social interaction in survey interviews. They deal with (1) the respondent's understanding of researcher's purposes for asking question and (2) how the social position of the respondent may influence his or her answering style. To conclude, we discuss the possibilities of anticipating contextual effects by questionnaire testing.

Case 1: The researcher's purposes and the answers of the respondents

We recently tested a draft questionnaire for a survey on everyday learning in the survey laboratory of Statistics Finland. Everyday learning refers to learning that takes place in people's daily life and is connected with different social situations, human relationship networks and changing functional environments (Aittola 1998). Conventionally, learning has only been associated with formal education. One of the questions that were to be tested read: *"This card contains a list of different kinds of areas of knowledge, skills and abilities. Which of them are important in your life? Please select from them the five that you regard as the most important in your life at the moment."* The card listed fairly broad areas of knowledge, skills and abilities, such as management of own time use, prudent consumption and management of finances, conversation and interactive ability, and tolerance and acceptance of difference. We present the testing of this question as an example of how the meaning of a question can be improved upon by testing its answering process.

We studied the answering process to the question with cognitive interviews. For this we conducted 21 interviews (Ahola & Lehtinen 1999). The aim was to examine how people understood the question. What were they actually answering when they were asked this question? How did they justify their answers? We asked the respondents to think aloud or otherwise describe the way they had arrived at their answers. What exactly did they think the question meant? What did they think the researcher wanted to know?

Some of the interviewees pointed out the difficulty in answering the question while they were answering it. *"Should I answer according to my strongest areas or the most interesting ones? The areas one does not have the best control over are precisely the most interesting ones"*. One interviewee stated having answered according to the most interesting areas but also according to where there was most room for development. *"Does this mean that I already possess it? That it's not just what I dream about?"* Most of the respondents made no reference to difficulties in answering. This means that conclusions about the thoughts that guided their answering could generally be drawn from the dialogue describing the question-answering process. For example, some respondents thought that the question was looking for values that guide life. Therefore, when answering these respondents did not think about the areas of knowledge, skills and abilities listed in the first part of the question, but were rather answering its final part: *"Please select from the things listed on the card the five you regard as the most important in your life."*

All in all, the respondents answered the question from at least three different perspectives: 1) what they needed most in their lives and what they then generally already were best at; 2) where they would have liked to improve most; 3) what values and dreams guided their lives. The choice of perspective also determined whether a respondent's answer was oriented towards the future or the past. *"I chose according to what I regard as important – discarding self-evident things even if I need them – I regard as important the ones that are the most problematic. I am more oriented towards the future than towards the past"*. Because the researcher had not defined the perspective from which the respondent should choose the key dimension of the question, the respondent had to make the choice him or herself. This having been the case, all the respondents did not answer from the same perspective.

When testing the question-answering process to our example question we asked the respondents what they thought the tester wanted to know *"What did you think I wanted to know when I asked the question?"*:

"Sort of positive things. The kind of daily ones people have. I thought it meant knowledge about the meaning of human life."

"The question says quite a lot about a person. It is a bit like a psychological test, or at least the areas are of that type. What kind of a person I am."

"What I personally feel."

"What kind of a person I am. How these things are with me – what interests me."

"What seems valuable or important at the moment."

"Things that are important to me. You wanted to know the general scale of my approach to these."

"Way up things. One cannot claim being good at them – these are matters of superego."

Drawing conclusions about the researcher's rationale was not always so conscious that all the respondents could verbalise it. In such cases it could be studied from other dialogue describing the question-answering process. Basing on these descriptions it seemed that the respondents understood both the meaning of the question and the purpose for which their answers would be used in different ways. The consequence of the multidimensionality of the meaning of the question was that the interviewees resorted to diverse contextual cues provided by the list on the card. As a result of this, answers were given from many different perspectives. It was obvious that the meaning of the question needed clarification.

A respondent's inferences about the meaning of a question determine the contents of the given answer. Respondents can answer honestly in more than one way, because people's attitudes to a matter they are asked about can generally vary. So that comparing responses would make sense, the researcher has to either try and identify the frameworks different respondents have used in answering or specify the perspective all respondents should adopt in answering. In the case of the former, the researcher can subsequently attempt to classify the respondents by the used answering dimension and analyse separately the answers in each category. The approach may be deemed as acceptable under the assumption that the same respondent always adopts the same perspective in answering a question. However, the problem here is that a respondent may alter the perspective if he or she is allowed to re-answer the question. A more viable alternative would be for the researcher to specify in advance the perspective and framework from which he or she would like the respondent examine the matter being asked about.

The fact that respondents may give different answers to the same question dependent on their chosen orientation creates two problems the researcher must solve. Outwardly identical looking answers may turn out to have been given from completely different perspectives. Nevertheless, the researcher may treat them as if they had the same meaning. Second, if the researcher does not know the respondent's perspective, he or she is unable to interpret the answers reliably. Because respondents do not adopt the same point of departure in their answering, it can be claimed that they do not answer the same question. In this case their responses cannot be sensibly compared and the researcher is unable to interpret the obtained answers correctly in the way the respondents meant.

Case 2: The social position and the answering style of the respondents

The co-writer of this paper, Anja Ahola (1993; 1995; 1996), has studied Finnish respondents' answers to the same questions about well-being in a paper-assisted telephone interview (PATI) and a computer-assisted personal interview (CAPI) compared to their reporting in a traditional paper-assisted personal interview (PAPI). She defined as well-being answers those answers in which respondents reported about their well-being, ill-being and anxiety in a survey interview. The telephone interviews gave a more positive picture of the well-being experienced by Finnish respondents than did the answers to the traditional face-to-face interview. The CAPI responses seemed to differ from the PAPI responses under the same logic as responses from telephone interviews (PATI) differed from those obtained with face-to-face interviews (CAPI). Respondents

belonging to social groups below the highest ones reported symptoms of ill-being more readily in a personal, face-to-face interview situation. The well-being answers of those in lower social groups fell well within the rule according to which method differences increase as the contents of the questions grow socially less acceptable. However, several international studies have concluded that a more anonymous interview situation encourages the respondents to report socially sensitive matters. According to this method comparison the opposite is true, indicating that responding to a survey is closely culture bound.

An example of this answering logic are method differences in symptom reporting (Table 1). The differences between CAPI and PAPI reporting of health symptoms by social group are greater and clearer than corresponding differences between telephone and face-to-face interviews. However, the magnitude of the differences depends in the same way on the content of a symptom. There are large differences in the reporting of depression symptoms but small ones in the reporting of symptoms indicating exhaustion. In a work-oriented culture, talking about time pressure and stress is socially acceptable but, on the other hand, coping is a point of honour, which may explain why differences in the reporting of stress symptoms are much smaller than those in the reporting of depression symptoms.

Table 1: Reporting of psychic symptoms by wage and salary earners aged 25 to 54 in a paper-assisted telephone interview (PATI) and computer-assisted personal interview (CAPI) compared to their reporting in a traditional paper-assisted personal interview (PAPI) (PAPI = 100).

SYMPTOM	PATI/PAPI ratio in 1987*) PAPI = 100**)			CAPI/PAPI ratio in 1993*) PAPI = 100**)		
	upper level	lower level	workers	upper level	lower level	workers
Exhaustion						
Over-exhaustion	95	91	81	80	100	93
Listlessness or fatigue	88	83	78	105	96	88
Irritability	68	74	59	129	89	74
Restlessness or tension	81	84	57	128	88	64
Depression						
Low spirits or depression	87	59	56	111	103	59
Lack of initiative or indecision	71	59	47	146	88	62
Feeling that everything is just too much	64	67	50	214	65	55

*) The sample for the comparison between the PATI and PAPI interviews comprised 5,010 wage and salary earners aged 25 to 54, of whom 765 participated in the PATI interview and 4,246 in the PAPI interview. The sample for the comparison between the CAPI and PAPI interviews comprised 461 wage and salary earners aged 25 to 54.

***) The ratios have been calculated from the percentages of respondents in each population group having reported the symptom concerned.

Telephone and computer as interviewing equipment reduce communication between the interviewer and interviewee, improve the professionalism of interaction and the structure of the interview, making the interview situation slightly more formal and official than the traditional face-to-face interview. In a formal interactive situation, people try to follow norms and behave according to social desirability (Deutsch 1985, 74–95).

In a culture in which the need to live according to norms is strong (cf. Hofstede 1980) even a minor increase in the formality of the interview situation may make participants control more closely the impression they give of themselves. The results of this study would seem to indicate that the social position of the interviewee reinforces the trend according to which answers that are socially more desirable are given in a more impersonal interview situation. The hierarchy incorporates the tendency to give socially acceptable answers especially in a situation that arises between people of different social positions. Those in higher social positions are more used to both voicing their opinions and to receiving no feedback from an interview type situation, which is why increasing anonymity of interaction does not denote hierarchy to them in the same way it does to those belonging to lower social groups.

However, the interviewee's answers are not only influenced by his or her relationship with the interviewer, but also by the social context communicated by the institution conducting the survey. Schwarz (1999) reports on an empirical finding of how the institution represented by the researcher influences inference about the purpose of a question. The respondents were shown a press article about mass murderers and were then asked to tell why they thought mass murders happened. The question had been printed on the headed stationery of either a personality research institute or a social research institute. As expected, depending on the used stationery the respondents emphasised more either personality or social factors. In other words, they took into account in their response the way they thought their answers would be used, i.e. the purpose of the survey.

Thus, consideration should be given to the fact that a survey interview also includes a third party, i.e. the agency conducting the survey, whose status may vary depending of the degree of

officialness of the interview. In our case the interviewer could choose freely how to present his or her relationship with the agency that had ordered the survey, in other words decide whether to use the expression “we” or “they”. The questions were asked in connection with a survey about general living conditions. The commissioning party for all the surveys was Statistics Finland, in other words a central government agency. The purpose for which the answers were to be used was given as statistics to describe general living conditions. The questions concerning experiences of well-being were semantically easy to understand. However, inference of why an individual question should be asked in a survey questionnaire to describe general living conditions was left up to the respondents. Questions describing the experiencing of well-being can be answered in a multitude of ways depending on the purpose for which the answers are to be used. With socially sensitive questions the interviewees were likely to consider their answers more closely and seek cues from the interview situation as to the purposes for which their answers would be used.

A respondent may also deduce the researcher’s objective from cues obtainable from the data collection situation as a whole. Survey researchers do not normally disclose their intentions to respondents. The explanations they give are often very general and are given in an accompanying letter the purpose of which is to persuade respondents to participate in the survey rather than to explain to them why the survey is being conducted. It is often assumed that the obtained answers are more reliable if the respondents do not know why the questions are being asked. When respondents are only given vague information about the purpose of the survey they must infer it by guessing. Naturally, respondents could solve this by asking the interviewer for an explanation. In survey practices, such explanations are not given, nor is their giving encouraged in order to preserve question standardisation. In addition, the answering situations in surveys are often such that the status of the respondent is lower than that of the interviewer, in consequence of which respondents rarely make use of the opportunity to correct the interviewer unless specifically encouraged to do so. Therefore, respondents must resort to the available contextual information to draw conclusions about why a certain question is being asked.

In conclusion, the respondent’s interpretation of the researcher’s purpose for asking question will influence their answers. In other words the respondent chooses the answer according to how he or she understands the whole interaction situation. The respondent answers a question from the standpoint of his or her social position, in other words from his or her “action context”. The respondent’s social lifelong experiences are the context of his or her answering style.

Contextuality of survey responses and questionnaire testing

When the aim is to improve the ability to make questions it is important to understand the underlying assumptions of the methods. The traditional survey perceives the question-answering process as an activity that complies with the stimulus-response model, which means that responding to a survey is seen as a mechanical reaction to external stimuli (survey questions). It is presumed that as long as the wording of a question is strictly standardised it can be used consistently in all data collecting situations. It is presumed that a respondent has only one correct answer to each question, which renders the reactions obtained to the questions comparable. The following assumptions about the nature of survey response connect with this idea: 1) answers are more reliable when the respondent is not told why a question is being asked, 2) the data collecting situation has no influence on answers, 3) the responding process has no influence on answers.

In the past two decades, answering to surveys has been studied within the framework of cognitive psychology (Jabine et al. 1984). Knowledge about the kinds of cognitive information and skills people utilise when answering survey questions is being exploited in the designing of survey questionnaires and in the formulating of survey questions. According to Jobe and Mignay (1991) modelling of the respondent's mental functions into the processing of cognitive information meant a vast progress in the understanding of the question-answering process. This information processing model focus on individual thought processes. For example according to Norbert Schwarz (1996) this model was not fully satisfactory. The question-answering process is also a communication process. On the basis of recent survey methodology literature (E.g. Sudman et al. 1996; Tourangeau et al. 2000) the model looks like this (Lehtinen & Ahola 2002).

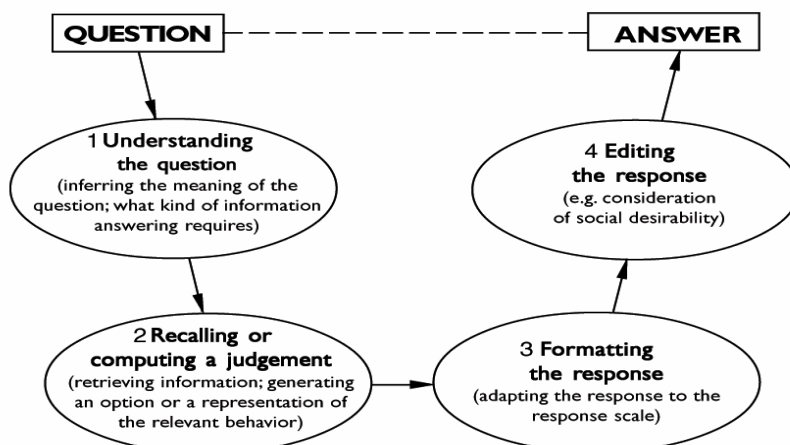


Figure 1: The model of the question-answering process

Understanding a question and the reason why it is asked reflects two things: on the one hand, semantic comprehension of an expression and, on the other, its practical and pragmatic understanding (Sudman et al. 1996). For example, it is easy to comprehend semantically, word for word the question "What have you done today?", but a sensible answer to it also requires drawing conclusions about the objectives of the asking party. Would disclosing having taken a shower, for example, serve the purpose of the inquirer? In this inferring of the questioner's purpose the pragmatic meaning of the question is important and in it the respondents usually resort to everyday conversational assumptions.

But is something still missing? A respondent chooses an answer according to purpose the respondent thinks his or her answers will be used for. The respondent answers the question from the standpoint of his or her social position. The logic of survey answering is social, too. Different questions create their own frameworks of reference within which answers to them are given. These frameworks can also vary by individual or population group (Alasuutari 1998, 135–141).

This being the case, a survey does not try to find universal characteristics of human behaviour that apply in all cultures, but demonstrates that its results are bound by time and vary from one culture and population group to another. Therefore, context is a frame or field of activity into which the examined event is interwoven and which allows for its appropriate interpretation (Goodwin & Duranti 1992). When the multiculturalism of societies increases contextual factors become more and more important also in the survey methodology.

The contexts of test interviews deviate in many ways from those of actual survey interviews. Questionnaire testing is explained to the respondents who participate in it differently from the way a survey is explained to its respondents. For example, participants in test interviews know that the information they provide will only be used to develop the final data collection questionnaire and not as research data as such.

We will next consider the capability of the survey laboratory of Statistics Finland to test the contextuality of survey responses. At the initial stage we have been employing three testing methods: focus group interviews, the expert panel and cognitive interviews. If necessary, we can also make use of pilot surveys conducted as face-to-face or telephone interviews. Our laboratory is located in Helsinki, which means that our research subjects come from the capital region. The

cultural context of the capital region differs in many ways from that of the rest of the country. We have tested telephone interview questionnaires by conducting test telephone interviews covering the whole country.

The testing method we use most frequently is cognitive interviewing, in which the question-answering process is studied using the thinkaloud method and by asking probing questions. Cognitive interviews have traditionally been used to obtain information about the respondents' answering strategies and definitions of concepts, concentrating on evaluating the cognitive burden imposed on the respondents. Revision of questions on the basis of the obtained information improves the understandability of the wording and meaning of questions, thereby reducing contextual effects.

Interview data can also be collected and analysed from the perspective of contextuality. To be able to conduct and analyse a test interview from this perspective, a tester must know what contextual effects can be like. The interviewee must be given plenty of time and has to be presented such probing questions that make him or her think about the pertinent matter. In our experience the thinking aloud protocol rarely produces information about the purpose the respondent thinks his or her answers will be used for. This has to be inquired about with a retrospective method, i.e. probes such as: What do you think the researcher wants to know by asking this? What do you think the conductor of the survey (Statistics Finland) will be using these answers for? Why is a question like this asked in this survey? These encourage the interviewee to assess how he or she, or survey respondents in general, would understand a certain question's purpose of use.

The expert panel focuses on appraising the cognitive burdening of questions. The panel evaluates the questionnaire and locates in it problem areas that should be tested further with other methods. Because the coding system for appraising questionnaires progresses question by question, it steers towards the appraisal of individual questions, failing to take into account the questionnaire as a whole. The expert panel can also put forward hypotheses of the contextual effects that can be empirically tested with other methods.

We have generally used focus group interviewing as an explorative pilot survey method, where its objective is to obtain information about how interviewees perceive the topic and concepts of the survey, what kinds of meanings and definitions they attach to them and what kind of language and terminology they use when talking about matters relating to the survey topic. In this connection it is

also possible to ask for the focus group members' views about the conductor of the survey and about the purposes for which data on the survey topic are needed.

A further purpose for which focus group interviewing has been used is evaluation of data collecting tools. Then the interviewees have usually prepared themselves for a discussion through participation in a pilot data collection. The objective in focus group interviewing is to gather evaluations and experiences relative to a data collecting procedure and its collecting tools. Focus group interviewing is well suited for the studying of the meaning of the survey situation as a whole. For example, it can be implemented after a pilot survey on a relatively large sample that also contains participants from areas outside the capital region. It will then enable studying how different population groups have understood the reasons for conducting the survey and presenting the questions.

All in all, pretesting can be used to study how respondents understand the meanings of questions and the purposes for presenting them. Other methods must be employed to study contextual effects (if contextual effects are understood as the effects on resultant response distributions). Preliminary studies produce information for the anticipation of contextual effects.

The results of these studies can be used to ensure that all respondents have as much common contextual information as possible available to them for answering. Respondents draw conclusions about the objectives of the researcher and the institution he or she represents, thereby forming an idea of how their answers will be used. Therefore it would be important to explain the purpose of the survey and its individual questions to the respondents. This information can be communicated to the respondents in discussions preceding answering, in accompanying letters, and questionnaire and question introductions (cf. Alasuutari 1998, Foddy 1995).

Even when a questionnaire has been pre-tested, it always still contains questions all respondents fail to fully understand. This is why respondents should be encouraged to disclose when they cannot understand the questions presented to them so that the user of the data can take this into account when interpreting the answers. Because regardless of its eventual use, the task of a survey analysis is to detect differences between the surveyed units, comparability of answers is a crucial quality criterion. For this reason, a meaningful question-answering process requires that the respondent interprets a questions in the way the researcher intended and that the researcher interprets an answer in the way the respondent intended.

The key question relative to the quality of survey responses, as quoted in cognitive literature is: "Does the respondent understand the question in the way the researcher intended?". William Foddy (1995) defines the quality of an answer even more broadly: "Does the respondent interpret the question in the way the researcher intended? – Does the researcher interpret the answer in the way the respondent intended?" This also puts the role of the researcher as the interpreter of the answers produced in a survey process into a central position in the examination of response quality.

BIBLIOGRAPHY

Ahola, Anja (1993): Menetelmäkö määrää tulokset? Does the method determine the results? (In Finnish, English summary). *Sociologia* 30:3, 200-211.

Ahola, Anja (1995): Haastattelutavan muutos ja terveystvasteet. The impact of the mode on interviewing on responses. *Sosiaalilääketieteellinen Aikakauslehti, Journal of Social Medicine* (In Finnish) 1995:32, 251-262.

Ahola, Anja (1996): Responses to health questions with a new interview mode. The Role of Statisticians in Today's Information Society. The 20th Conference of Nordic Statisticians, Statistical Reports of the Nordic Countries. Copenhagen.

Ahola, Anja & Lehtinen, Marjaana (1999): Informaalinen oppiminen arkipäivän ympäristöissä. AKU 2000 – kysymysten ymmärrettävyyden testaus. Informal learning in everyday environment. AKU 2000 –questionnaire testing. Unpublished manuscript 20.12.1999. (In Finnish). Statistics Finland.

Aittola, Tapio (1998): Aikuisten oppiminen arkielämän ympäristöissä. Adults learning in everyday environment. In P. Sallila & T. Vaherva (eds.) *Arkipäivän oppiminen. Everyday learning. Aikuiskasvatuksen 39. vuosikirja. 39th Year Book of Adult Education* (In Finnish) Gummerus, Jyväskylä. 59-89.

Alasuutari, Pertti (1998): *An invitation to social research*. Sage Publications, London.

Deutsch, Morton (1985): *Distributive justice. A social-psychological perspective*. Yale University Press, New Haven and London.

Foddy, William (1995): *Constructing questions for interviews and questionnaires*. Cambridge University Press, Cambridge (UK).

Goodwin, Charles & Duranti, Alessandro (1992): *Rethinking context. Language as an interactive phenomenon*. Cambridge University Press, Cambridge (UK). 1-42.

Hofstede, Geert (1980): *Culture's consequences: international differences in work-related values*. Sage Publications, Beverly Hills (CA).

Jabine, T. B., Straf, M. L., Tanur, J. M. & Tourangeau, R. (eds.) (1984): *Cognitive aspects of survey methodology. Building a bridge between disciplines*. National Academy Press, Washington DC.

Jobe, Jared B. & Mingay, David J. (1991): *Cognition and survey measurement: history and overview*. *Applied Cognitive Psychology* 5, 175-192.

Lehtinen, Marjaana & Ahola, Anja (2002): *Surveylaboratorio kognitiivisen tiedon soveltajana. Surveylaboratory in applying the cognitive knowledge*. In A. Ahola, P. Godenhjelm & M. Lehtinen: *Kysymisen taito. Surveylaboratorio lomaketutkimusten kehittämisessä. The ability of asking questions. Surveylaboratory in questionnaire development*. (In Finnish) *Reviews* 2002/2. Statistics Finland.

Maynard, Douglas W., Houtkoop-Steenstra, Hanneke, Schaeffer, Nora Cate & van der Zouwen, Johannes (eds.) (2002): *Standardization and tacit knowledge: interaction and practice in the survey interview*. John Wiley & Sons, New York.

Mixon, D. (1974): *If you won't deceive, what can you do?* In N. Armistead (ed.): *Reconstructing social psychology*. Penguin, Harmondsworth.

O'Muircheartaigh, Colm (1997): *Measurement error in surveys: a historical perspective*. In L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo & N. Schwarz (eds.): *Survey measurement and process quality*. John Wiley & Sons, New York. 1-25.

Schober, Michael F. (1999): *Making sense of questions: an interactional approach*. In M. G. Sirken, D. J. Herrmann, S. Schechter, N. Schwarz, J. M. Tanur & R. Tourangeau (eds.): *Cognition and survey research*. John Wiley & Sons, New York. 77-93.

Schwarz, Norbert (1996): *Cognition and communication: judgmental biases, research methods, and the logic of conversation*. Lawrence Erlbaum Associates, New Jersey.

Schwarz, Norbert (1999): Self-reports. How the questions shape the answers. *American Psychologist* 54:2, 93-105.

Schwarz, Norbert & Sudman, Seymour (eds.). (1992): *Context effects in social and psychological research*. Springer-Verlag, New York.

Sudman, Seymour, Bradburn, Norman M. & Schwarz, Norbert (1996): *Thinking about answers*. Jossey-Bass Publishers, San Francisco.

Tourangeau, Roger, Rips, Lance J. & Rasinski, Kenneth (2000): *The psychology of survey response*. Cambridge University Press, Cambridge (UK).