

# **GMO – PERSPECTIVE OF THE SOCIAL SCIENCES**

*Adéla Seidlová*

On the threshold of the twenty-first century science is becoming more and more a public domain. Times, when scientists researched independently of the social demand, ended already in the middle of the last century with state financing of extensive space and nuclear programs. Subsequent development of science financing aimed at supporting projects, whose results could be put into practice as fast as possible and thus improve the living standard of citizens.

For the first time now scientists are confronted with the fact that a substantial part of the public follows their research with great interest and literally with emotional engagement. It is always attractive for the media to write about the most recent results of scientific work in many technical, natural, but also social fields. Journalists present the results of scientific research to their readers formulated in a way comprehensible to wide public. Thus they necessarily have to simplify the information to enable the public to understand the investigated problems. An inseparable epiphenomenon of such interpretation of the scientific research results is also an attempt to bring these results as close to everyday life as possible.

We have come to a paradox, when the scientists are forced to further specialization, to very deep and extensive knowledge of one field, and yet, at the same time they have to give up on a deep knowledge of related topics as a result of the narrowing domain of scientific research. Under the influence of information presented to them about the research in progress, the public takes a stand on fully specialized problems without any knowledge of the scientific theory. With the growing civil activity of the developed democratic political systems, the public gain a wider possibility to promote their particular interests, and they enter the process of inter-mediarization (integration and mediation) of interests in the form of a movement or a public association.

Thus, apart from civic associations, other significant variables - media, public and public opinion, become involved in the decision making process in politics. Media, which function at the same time as creators and interpreters of the public opinion, public opinion and attitudes actively articulated and manifested in the public and private spheres, as well as passive public opinion surveyed by researchers, which is expressed privately, passively and often unwillingly.

## **Public opinion, public opinion survey**

Public opinion is not just a simple sum of opinions of individuals who constitute a specific society, even though it is directly connected to a specific society. Public opinion emerges around problems that are common to a large part of this society. Another determinant of public opinion is the condition of its articulation. Public opinion thus arises independently of the researcher who surveys it.

The origin of public opinion as a social phenomenon is often connected with the shaping of “a literary, reading and culture oriented society constituted in private saloons and cafés” [J. Habermas, 1965], with the rise of different types of public, at first only literary and philosophical, etc., and also with the transformation of private conversations into public conversations conducted on newspaper pages [G. Tarde, 1901]. According to Hegel, public opinion combines verity with ignorance and delusion. The goal of a researcher is to distinguish between these two constituents.

First attempts at conducting public opinion surveys have appeared as early as in the nineteenth century in connection with presidential elections in the United States. Individual

daily newspapers used to organize questionnaire investigations among their readers and on the basis of their results attempted prognoses of the elections' outcomes. George Gallup, whose method was based on the two following basic parameters, is to a large degree responsible for the present shape of public opinion surveys as well as for the development of the public poll methods:

1. standardised controlled dialogue of the interviewer and the respondent, in which the interviewer reads out questions from the survey and writes down the answers, at the same time following the prescribed procedures; the aim is to hold an interview as identical as possible with each of the respondents;
2. representative group of respondents based on a statistical error of choice, which is the guarantee of scientism and objectivity of the results acquired in the public opinion survey [G. Gallup, 1948].

### **Methods of the public opinion survey**

Sociology, unlike natural sciences, is a multi-paradigmatic science. All of these paradigms examine human society and cover different sociological schools, concepts and schools of thought, which differ in the object of their research. One of the possible specifications talks about the factual paradigm, which presupposes that "there exist social facts separated from an individual, that can be measured objectively (social structure, norms, anomy, institutions, group). Behavioural paradigm proceeds from the fact that the basis is a specific behaviour of an individual influenced by a given situation; this situation is created in a process of social interaction and communication" [D. Čermák, 2002]. And last, definition paradigm draws on a presumption that "the way the actors see and understand (interpret) a certain situation is much more important than the real state of affairs."

The non-existence of one universal paradigm in sociology brings about certain limitations: the findings of the surveys in the field of social sciences have a stochastic, probabilistic character; furthermore, the findings are applicable only to a specific environment and therefore they are bound to a specific society and their validity is also limited in time. Since in social science experimental methods can be used only to very limited degree, it is much more difficult to give evidence about the causality of the phenomena [M. Disman, 1993].

Research methods in sociology also derive from the multiplicity of possible approaches. In principle they can be divided into quantity and quality research methods. Quantity methods are most commonly applied in public opinion surveys, particularly the method of standardized dialogue of the interviewer and the respondent, which is based on the questionnaire. The interviewers are specially trained for this method to conduct the interview following strictly the instructions of the researchers. They cannot for example modify the text of the questions stated in the survey; they have to show the respondent a card with the offer of possible answers, etc.

Validity of the data arrived at by this method depends exclusively on the choice of respondents and on the development of the dialogue between the interviewer and the respondent. The basic requirement of the researchers is to constitute a non-instructional (non-suggestive), comprehensible and unambiguous questionnaire with short and clear answers in a manner that would not "force" the respondent to some opinion by the structure of the question itself, so that all the respondents have the same understanding of the question.

The aim of the researcher in the public opinion survey is to find out the attitudes and views of a specific society, most frequently citizens of one state. However, the society usually consists of a large number of individuals, a so-called target population. For this reason,

research is usually conducted on a small sample of population and its findings are generalized to the whole population. Thus the first step of a correct choice is a correct definition of the target population (for example voters in the Czech Republic, students of specialized secondary schools, etc.). The next step is to determine a selection support, a simple list of all units of the target population (central registrar of inhabitants, election list of a community, list of students of a particular school).

Finally, the selection of respondents based on the selection support proceeds according to one of the possible selective methods. In principle we distinguish between probability and non-probability selection. To secure reliability of sociological research or a public opinion survey, it is possible to use only certain selective methods from each of these groups. With non-probability selection, it is usually the quota selection method, which is based on providing concordance of certain selected characteristics of the sample with the population (most usually the region and community size, sex, age and education of the respondents).

The probability selections eliminate the influence of judgement on the process of selection. They are based on the principle that every unit of the target population has the same probability of being included into the selection plan. „All types of random selections enable us to estimate the size of the so called selective error, and thus construct intervals, in which the correct results appear with reliability beforehand given – e.g. population characteristics“ [P. Průšová, 1998].

The most commonly used probability selection is the so-called stratified random choice, when the target population is divided into several groups (so called stratas, which are heterogeneous towards each other, whereas units they contain should be homogenous). As a second step, a required number of units is randomly chosen from each of the strata. Second commonly used probability method is a “random walk”, when “points of departure” are chosen and a “procedure” and a “step” are determined from the final and complete list of addresses using a probability method. Basic probability selective method – simple random selection – is used only rarely, in practise it is difficult to get a list of all target group units (due to restricted access to the population registrar or census results).

In practise, a research is often influenced by the lack of financial means and at the same time it is under the pressure of social or political demand. The public opinion survey results tend to be published with specific intentions, contradictory results of different agencies appear in media, and all this happens in a situation, when significant research institutions are not interested in conducting their research absolutely transparently. All that leads to a certain degree of scepticism towards public opinion surveys as such.

## **Social environment of the public opinion surveys**

Present western societies have been commonly described as “post-modern” societies, even though this term has been often criticized for different reasons. In 1986, Ulrich Beck published his book „Risk Society: Towards a New Modernity“, in which he labelled the present society as a society in transition between the industrial and the risk society. He characterized the industrial society in a following way:

- „science was regarded as a saviour of humankind, because it generated wealth for everybody and solved problems of illness and famine,
- politicians were primarily concerned with redistribution of wealth and fair placement of precious resources,

- negative and self-endangering side effects have always been produced, however, they have not yet become a central theme of political conflicts“ [quoted from R. Almas, 1999]

Risk society, on the other hand, is characterized by the following:

- “as a result of scientific and industrial development, human beings are confronted with a number of risks and dangers, that are limited nor in time (future generations can be affected as well), nor in place (they affect the whole planet),
- science and technology have solved a number of problems, at present, however, they are regarded as big destroyers, because of causing problems, which they are unable to solve themselves,
- risks are inner and necessary outcomes of modernity, they are not external problems,
- politicians deal also with the impact of undesirable risks and dangers caused by unlimited science and technology, the dangers of industrial society are in the centre of public and private debates and conflicts,
- politics is a conflict about the distribution of desired and undesired products, as well as a conflict about the distribution of wealth.“ [quoted from R. Almas, 1999]

Beck distinguishes three phases of modernity: pre-modernity, simple modernity (which is identical with the industrial society) and a phase of reflexive modernity, which is also identical with the industrial society, but at the same time with also with the risk society. The last one is typical for people, who are losing their faith in science and expertise and who feel betrayed. Beck later talks about sub politics, which is becoming a new arena for social and political duel, in which social movements, scientists, industry, state, politicians and others fight for legislative and political decisions [U. Beck, 1994].

Every individual has his/her own interest and tries to enforce it by using all possible means. Politicians have diverse interests and their main effort is to hold their positions, that is, to do well before their voters during elections and at the same time represent the interests of their political parties that remain ideologically tinged. Conservative politicians and parties try to keep their distance from anything new, food industry companies would like to cut down expenses, motivation of some social movements are mysterious. In most cases, however, they use similar arguments as politicians do.

### **Possible misuse of public opinion surveys**

Public opinion survey is one of the potential weapons that can be, and often are, used by individual players in their fight for legislative and political decisions. The simplest way of targeted misuse of public opinion surveys is to publish intentionally only parts of information or to place the information from a public opinion survey or a sociological research in a distorting context. The intentional manipulation with the recipients of information is the same as with any other type of data.

A public opinion survey is specific by the possibility of its misuse already in the very process of collecting information. Moreover, disclosure is almost impossible. The possibilities are vast. Their spectrum starts with those who cannot be discovered even by a specialist to those that can be traced even by a layman.

The example of the first type of cases is an intentional deviation from the group of respondents. If the researchers' aim is to find out attitudes oriented rather against the GMO, they can chose older interviewers with conservative values and rather humanistic education for the quota selection and assume that the interviewers will chose respondents with similar opinions. As with the quota selection, the interviewer's opinions and attitudes can also play a

part in the probability selection, especially if he/she is not strictly neutral when conducting the interview and shows his/her sympathies for certain answers of the respondent. In case of using random walk as a method of respondent selection, one can use knowledge of the opinion geographical map of the territory and deliberately chose areas with one prevailing opinion concerning the problems. It is impossible to prove this kind of manipulation, even in case that the access to the data file of the research is allowed. The extent of the impact of such an abuse cannot be estimated beforehand.

Targeted order of the questions asked represents a higher degree of manipulation, even if the individual answers are otherwise neutral and non-suggestive. It is certain that we will wait to see a diverse frequency of answers to a question about the use of laboratory modified plant in food industry for higher pest resistance, if we first ask the respondents whether they are afraid of genetic mutants. It is possible to prove the influence of the previous question, the so-called "halo effect", by further research of two control groups. Questions in the original order are given to the first group and questions in a different order with the sensitive question hidden among neutral themes are given to the second group. This comparative study is viable provided that the original questionnaire is accessible and there are financial means for a comparative test.

In predicting the impact, manipulation with the wording of questions and options for the answers is most effective. Suggestive question is for example the following: "Do you agree with using genetically modified plants or animals in food products, even though it has not been ruled out scientifically that they cause grave health problems?" Another example is an instructing question: "Please, tell me whether you agree with the following statements. Genetic modification of organisms is not natural. – It hasn't been proved that eating food from genetically modified organisms has no impact on human health". Using incorrect, that is to say, "bad – balanced", instructing or incomplete options of possible answers has the same effect.

Only this kind of manipulation can be discovered without any further information about the progress of the research, provided that the most essential condition of ethical codex, that is, simultaneous publication of the full version of the question with the options for answers offered, is complied with. Examples stated in this text are evident even to laymen in sociological research or public opinion research. An expert, however, can detect even a subtler manipulation of this type.

Public opinion surveys are capable of revealing and describing attitudes and opinions of the public and also of detecting deeper motivations of these attitudes, thus serving as an important means of learning about social events and comprehending social processes. All information, even that discovered by social research and public opinion surveys, can be misused and only a higher quality general education in the field of social sciences and a development of critical thinking can prevent it.

- Almas, R. 1999. *Food Trust, Ethics and Safety in Risk Society*. Sociological Research Online 3/1999, Guildford.
- Beck, U. 1986. *Risk Society: Towards a New Modernity*. London: Sage.
- Beck, U., A. Giddens, and S. Lash 1994. *Reflexive Modernization*. Cambridge: Polity Press, Oxford: Blackwell Publishers.
- Čermák, D. 2002. „Sociologická paradigmatata a jejich vztah k předmětu sociologie.“ *SOCIOweb* 0/2002.
- Disman, M. 1993. *Jak se vyrábí sociologická znalost*. Praha: Vydavatelství Karolinum.
- Gallup, G. 1948. *Průvodce po výzkumu veřejného mínění*. Praha: Orbis.
- Habermas, J. 1965. *Strukturwandel der Öffentlichkeit*. Luchterhand, Neuwied am Rhein und Berlin.
- Průšová, P. 1998. „Výběrové procedury.“ In: Jiří Šubrt a kolektiv: *Kapitoly ze sociologie veřejného mínění*. Praha: Karolinum.
- Tarde, G. 1901. *L'Opinion et la Foule*. Félic Alcan, Éditeur.