

## Expertise as a Research Method in Education

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**Abstract:** Scientific approach, selection of a method or several methods corresponding to the research aim and their suitability to or compliance with the decisions to be taken regarding the solution of problem, as well as respecting the principles of research ethics is a guarantee of the research significance and successful solution of problems under research. The expert method is widely applied not only in social sciences and psychology, but also in education science. It is considered to be one of the most appropriate for collecting, analyzing and evaluating of information, as well as for forecasting, when it is necessary to take responsible decisions in relation to innovations in education, including pedagogical process. The method by means of which obtained results are based on the opinions and assessments of competent experts is called an expertise, an expert's opinion or the method of expert assessment. *The aim of the research:* to substantiate theoretically the expertise as a research method in education science. The article is the presentation of theoretical research results obtained as a result of scientific literature analysis and evaluation, as well as scientific research reflection of authors in the field of research methodology.

**Keywords:** expertise, education science, research method, university education.

### Introduction

Scientific approach, selection of a method or several methods corresponding to the research aim and their suitability to or compliance with the decisions to be taken regarding the solution of problem, as well as respecting the principles of research ethics is a guarantee of the research significance and successful solution of problems under research.

Many researchers conduct research in pedagogy resulting in new concepts, models, innovative education strategies, education methods or training programmes and in the improvement of pedagogical process, teaching materials with new content, which are important to put into practice before starting their implementation.

Usually the latest findings are entitled to be implemented into practice in an experimental way. However, there are situations when a pedagogical experiment, due to the fact that it involves participants of the research, namely, schoolchildren, students and adults who learn, store positive educational experience, acquire knowledge, skills and competences, would not be appropriate to use as the research method to solve the existing research problem, implement innovative ideas and obtain research data because of additional difficulties or obstacles. In addition, the results of a pedagogical experiment are not always predictable.

Unfortunately, education is a scientific discipline of human activities, where introduction of incompetent, scientifically improper and voluntary decisions influence the life of many people and their learning experience which later might influence their professional and personal development negatively, including the system of attitudes and values, motivation to study and future plans, professional activities and a career on the whole. To avoid such practices, a reflexive method of a researcher himself/herself is being used before the initiating changes. However, not always competence and accumulated experience of one person might be used as the basis for adopting serious decisions. Therefore, an opinion and competence of several experts is necessary. It is even better if there is unanimous opinion among experts. In such situations it is recommended to use for approbation of innovative approach as the research method in order to analyse its implementation and application, as well as forecast the results.

The expert opinion method provides validity and reliability of the research when it is necessary to obtain evidence of the research (Bogner, Littig, Menz, 2009; Cohen, Manion, Morrison, 2007; Cuhls, 2005). Therefore, the results of the expertise, i.e., evaluation and opinion of competent and experienced experts on the subject matter becomes the basis for adopting serious decisions, including implementation of innovation recommended by a researcher in order to obtain the necessary results.

*The aim of the research:* to substantiate theoretically the expertise as a research method in education science.

## Methodology

The research methods used in the article: 1) study, analysis and evaluation of scientific literature in the field of research methodology; 2) reflection of authors' academic/pedagogical and research experience.

Theoretical approaches are based on the following scientific findings about expertise (Bogner, Littig, Menz, 2009; Dexter, 1970; Dexter, 2006; Meuser, Nagel, 2009; Lewthwaite, Nind, 2016; Muskat, Blackman, Muskat, 2012; Protasevich, 2014; Severin, 2014).

## Results and Discussion

The expert opinion method became widely used in the second half of the 20th century. M. Kendall (Kendall, 1948) had a significant impact on the development of this theory by publication of his monograph dedicated to the use of the method of correlation ranges in the analysis of experts' opinions. The expert method is widely applied not only in social sciences and psychology, but also in education science. It is considered to be one of the most appropriate for collecting, analyzing and evaluating of information (Bogner, Littig, Menz, 2009; Lewthwaite, Nind, 2016; Muskat, Blackman, Muskat, 2012; Protasevich, 2014; Rieger, 1986; Severin, 2014). For example, the frequency of the application of the method in the empirical research in Russian doctoral theses in pedagogy accounts for 38.4% out of all methods (Protasevich, 2014).

The expert opinion method is used in the sociological and pedagogical research to carry out the following tasks (Bogner, Littig, Menz, 2009; Helmer, 1983; Kaynak, Bloom, Leibold, 1994; Waissbluth, De Gortari, 1990):

- create forecasts if the information about the object of the research is not available or it is not exact;
- create forecasts if the forecasting object is new and there is not any equivalent available;
- describe in detail main requirements of the research method, explain the procedure of the research, select methods and types of obtaining and processing data;
- evaluate validity of surveys and adjust surveys at a large scale;
- analyse in detail the results and forecast changes of psychological and pedagogical phenomenon of the research;
- confirm and revise data obtained by means of other methods;
- clarify factors influencing development of the object of the research included in the models;
- analyse the results, particularly, if there is an opportunity to have different interpretations.

The method by means of which obtained results are based on the opinions and assessments of competent experts is called an expertise, an expert's opinion or the method of expert assessment. Scientist S.N. Severin (Severin, 2014) claims that a special attention in modern pedagogical science is paid to ***the forecasting and projecting of the research***: the research should be based on the well-grounded methodology. Methodological reflexion and the research expertise before the actual study allows to determine its degree of quality and effectiveness, heuristic potential, novelty, theoretical and practical value of the research in theory and in practice. Undoubtedly, the diagnostic evaluation of the result by means of expertise allows to regulate and correct the pedagogical process as well as behaviour and actions of its participants, especially in the current pedagogical space, where significant changes have happened with the appearance of various education levels, programmes, standards and technological variables. Expertise is unavoidable in educational innovation (in any of its introduction and implementation stages).

The expert opinion method as the research method is based on, firstly, experts' competence and experience (*Latin – expertus – experienced*). Austrian scientist B. Littig (Littig, 2011) defines the term *expert*. Scientist suggests that mostly *professional experts* are in the centre of the scientific interest.

A. Bogner and V. Menz (Bogner, Menz, 2009) identify three types of *experts'* definitions: ***voluntary or based on experience, constructive or based on specific knowledge; based on the knowledge society***.

Several scholars argue that it is not enough with only specific knowledge to be called *expert*, i.e., L.A. Dexter (Dexter, 2006) differentiates experts from specialists who have specific knowledge, but at the level of a hobby. In order to differentiate notions *specialist* and *expert*, R. Hitzler (Hitzler, 2004) claims that experts are aware of the impact of their specific knowledge on others in the respective subject field. The definition of *expert* based on the knowledge society differentiates it from voluntary definition

where everyone is an expert in one's own life. As regards the constructive definition, the status of an *expert* is given by the researcher himself or herself (Bogner, Littig, Menz, 2009), an expert has specific knowledge created by the society itself (special knowledge and special functions).

Thus, an expert has competence of environment of professional activity, experience, special *expertise knowledge* (Littig, 2011) related to a respective subject field, it includes knowledge about action routines, decision-making regularities, collective orientation and interpretation of social models, as well as experts possess flexibility in thinking and in action, as well creativity and intuition.

Similarly, to Austrian scholars, scientists M. Meuser and U. Nagel (Meuser, Nagel, 2009) suggest that an expert is a broad-minded individual with high qualifications and special knowledge in the subject field having scores higher than an average respondent. The researcher himself/herself has to be fully responsible for the experts' competence, for their ability to solve the given tasks (Hoffmann et al., 2009).

Unlike large-scale surveys, where respondents are mostly anonymous, the identity in experts' surveys is known. During the routine expertise, a researcher has the opportunity to discover the most important aspects of the problem under the investigation, to increase reliability and validity of information, conclusions and recommendations, acquire unique and profound knowledge and experience during the life of an expert. The above-mentioned shows that an expert is a specialist, who is not only a practitioner, but also a well-prepared theorist having the opportunity to analyze, evaluate and predict scenarios of the research development.

There are several types of expert method: Delphi method, SEER method, PATTERN system, Forecasting programme method, method „Brainstorm”, Commission method.

**Delphi method.** The authors of this method are American scientists N. Dalkey and O. Helmer (Dalkey, Helmer, 1963); the aim of it is to find different views on the matter in a particular area. Delphi method's main features are: 1) experts' anonymity; 2) it is carried out in several steps; 3) it is done remotely. Delphi method is considered to be one of the most accurate methods as mutually independent experts are able to assess and forecast results more objectively than a structured group of people. In this way one can avoid a collision of various views and opinions, conformism and a collective impact that inevitably occur when working together (Dalkey, 1972; Hsu, Sandford, 2007; Ludlow, 1975).

There are three stages in Delphi method: 1) the initial stage, 2) the main stage, 3) the analytical stage. A team of experts is established in *the initial stage*, where number of experts does not matter, the focus should be on the quality of experts (Dalkey, Helmer, 1963; Hoffmann et al., 2009; Meuser, Nagel, 2009; Rowe, Wright, 1999). A survey is carried out in several rounds during the second stage where questions of a researcher's part are specified, structured; experts' assessment is statistically processed after each round, i.e., median *Me* and mode *Mo* are determined which should not exceed  $Me \pm 25\%$ , otherwise experts have to justify or specify their assessment. Experts are introduced with the results of each round which gives them an opportunity to change their views. It continues as long as experts' opinions coincide. Since the interviewing occurs in several stages, the researcher can correct questions, manage the procedure of the expertise. Several rounds allow one to get more balanced results. The researcher puts forward practical recommendations after receiving a collaborative assessment to address the problem. The results are analyzed and final recommendations are worked out in *the analytical stage*.

**SEER method** (*System for Event Evaluation and Review*). This method is used to analyse the scarcity of resources, capacity.

**PATTERN system** (*Planning Assistance Through Technical Evaluation of Relevance Numbers*). This method is used to determine the sub-structure and basic objectives of subject field, their significance, as well as amount of required financial, material and labor resources.

**Forecasting programme method** combines several system analysis methods.

**Method „Brainstorm”** generates new ideas for addressing complicated problems and training creative thinking.

**Commission method** is the method of obtaining experts' opinion during discussions.

Validity of experts' evaluation is achieved by means of logical and statistical procedures, selection of experts, a survey organization, data processing. Experts' point of view can be expressed not only

qualitatively but also quantitatively, i.e., in points and rating points (Glukhoded, Smetanin, 2016; Hoffmann et al., 2009).

The method consists in the analysis of the problem by experts with a qualitative and quantitative assessment of opinions and formal treatment of individual experts' opinion. Expert method provides an alternative solution for the assessment and the choice of the best variants.

On the basis of a personal reflection, it is possible to say that expertise has several stages (Figure 1): 1) a preparation stage of expertise; 2) the procedure; 3) data processing and analysis of the results.

A *preparation stage of expertise* (Figure 1) is very important since the following events occur during the preparation: 1) detailed planning of expertise: the definition of the aim, questions and objectives, the choice of the research methods (data acquisition and data processing methods); 2) selection of experts; 3) design of the material for experts, including experts' worksheets.

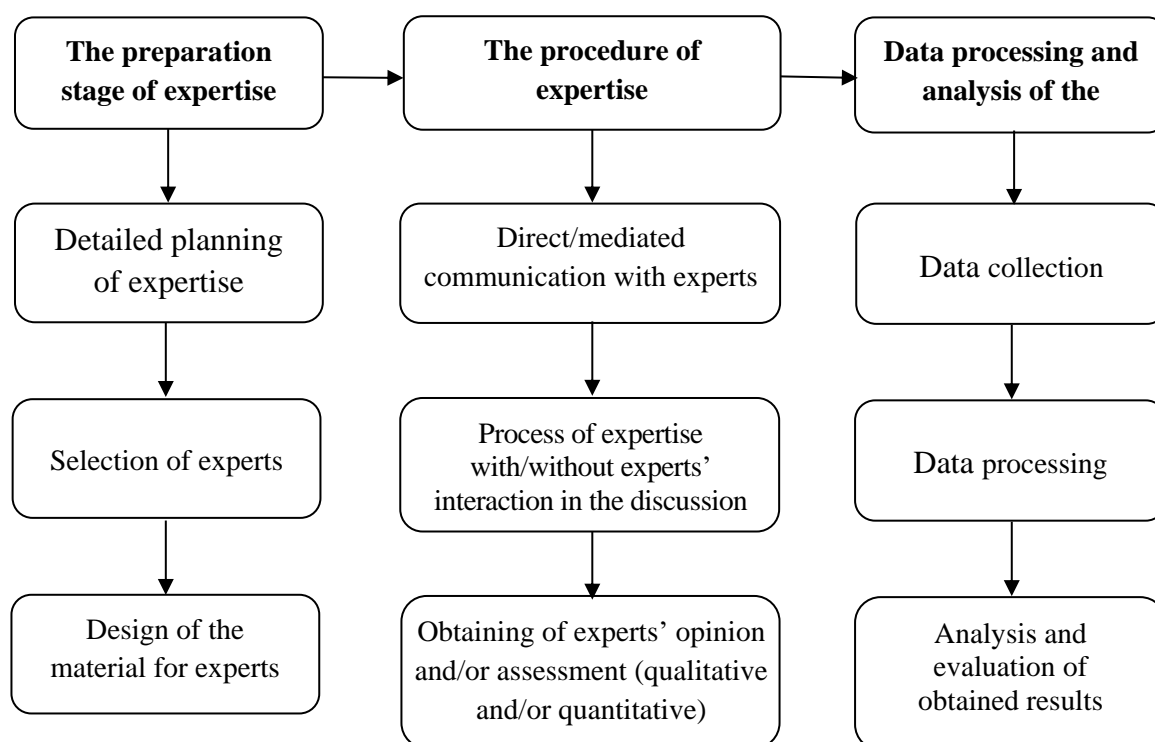


Figure 1. The stages of expertise.

### *The selection of experts and its principles.*

It is very important to select experts appropriately since the results of the expertise depend on it. The selection procedure should follow a certain procedure.

Not each professional of an industry, including a competent school teacher or a member of academic staff, scientist is eligible to be a competent expert, because experts need analytical and strategic thinking, forecasting ability, ability to look from a different angle at the object or a problem of the research (Mikecz, 2012; Shanteau, 1988; Stewart, 2001). Experts should be selected according to the aim of the research. Candidates for a position of an expert are chosen on the basis of several selection principles (Mikecz, 2012; Nind, Kilburn, Wiles, 2015; Stewart, 2001):

- each expert should represent his/her field of competence; however, the competences should partly overlap;
- professional and/or research activities should be directly or indirectly connected with the problem of the research;
- experts should not be directly connected with solution of the respective problem in their professional activities, i.e., experts should not be directly involved in the envisaged implementation of innovations.

The authors of the paper added additional principles which they considered to be of great importance in conducting the expert opinion method to three basic principles found in the scientific literature:

- experts should be competent in research methods;
- both external and internal experts should be included;
- experts should be familiar with the latest scientific and practical developments in the respective subject field, i.e., in education and pedagogical science;
- experts should have a combination of specific specialization professional competence and general competences;
- experts should be creative, flexible at work and creating attitudes; should be able to see creativity of a researcher / innovation author and at the same time forecast and analyse application opportunities and their necessity, as well as the results and consequences of the innovative implementation of the object of the research or a developed “product”.

It is necessary to assess the competence of experts in education, research, including familiarity with research methods. For this reason, the criteria for assessing experts' competence are required. In order to assess the competence of experts and their relevance to the aims and objectives of the expert opinion method, it is recommended to carry out the survey among potential experts in order to obtain information according to the expert assessment criteria, for example:

- years of academic/pedagogical work;
- experience in other fields of activity;
- formal higher education and qualifications;
- educational environment, including work experience;
- scientific or academic degree;
- additional qualifications acquired during lifelong learning;
- current position/positions;
- familiarity with research methods;
- scientific and /or methodological activities, including publications (methodological, scientific or popular scientific) supervision of research thesis;
- participation in associations, different commissions;
- close connection of professional activities with the subject field;
- implied connection of professional activities with the subject field.

Consequently, it is possible to say that expert opinion method allows: 1) to use heuristic ability of experts; 2) address the research question/problem, assess it from different aspects since each expert represents his/her area of activities, accumulated experience and competence; 3) it is possible to forecast scenarios with the help of experts; 4) to express information provided by experts in statistical data using various assessment scales; 5) receive valuable recommendations, commentaries, if it is required by the experts' task sheet; 6) make decisions dividing responsibility for the decision; 7) improve the “product” before it's experimental application in pedagogical/academic practice.

In order to find out how statistically significant consensus of experts' evaluation is, the secondary statistical analysis is performed to obtain conclusive statistical data. If consensus in experts' opinions is not found, it is necessary to proceed with the analysis and to check if differences in experts' assessment are caused by objective or subjective factors, for example, if experts see the problem from different angles, previous experience and other factors. More detailed analysis of the results gives an opportunity to find which criteria have different evaluation and why. According to the authors' experience, there are experts whose opinions differ significantly from the experience of other experts in all criteria (it is noticeably lower or higher). Such cases should be studied in more detail, analysing the opinion of an expert and factors influencing such an opinion. In spite of the fact that there are cases when there is a lack of consensus among experts' opinions or the result is not statistically significant, it is possible to obtain valid information about the object of the research. As it was mentioned before, experts' commentaries are very valuable which sometimes are more informative than evaluation scales themselves.

According to the authors' experience, the expert opinion method can be used both as a separate research and as a stage of the structured research.

## Conclusions

- An expert is not only a high level professional, a specialist with practical experience in his/ her subject field with high level competence and accumulated professional experience, but an expert is also a theoretician with analytical thinking ability and research experience which has a flexible mind and intuition, which is flexible in communication and expertise in order to be able to analyse, evaluate, forecast, make decisions.
- The expert opinion method allows to have a broader look at problems from different angles; to use heuristic ability of experts; to address a problem of the research and/or a problem situation with the help of experts' opinions / evaluations; to express experts' information statistically using various evaluation scales; to forecast, make improvements before the developed "product" is approbated; obtain valuable commentaries and recommendations from experts.
- There are several types of expert method: Delphi method, SEER method, PATTERN system, Forecasting programme method, method „Brainstorm“, Commission method. The choice of the method depends on the aims and objectives of the researcher. It is a common practice to adjust methods during the research.
- The scientific literature overview and experience reflection of the authors resulted in the design of expertise procedure consisting of three stages: 1) a preparation stage of expertise, which includes: detailed planning of expertise: the definition of the aim, questions and objectives, the choice of the research methods (data acquisition and data processing methods); the development of materials offered to experts; 2) the procedure of expertise; 3) data analysis as well as analysis of the results of expertise.
- According to the authors' experience, the expert opinion method can be used both as a separate research and as a stage of the structured research.

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