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SURVEYS AS A TOOL FOR OBTAINING VALID AND RELIABLE DATA IN GENERAL SECONDARY EDUCATION RESEARCH

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Summary. Surveys represent one of the most versatile and widely used methods for gathering empirical data on the functioning and development of general secondary education. Their advantages consist in – broad coverage, relative cost-effectiveness, and the ability to capture subjective assessments from stakeholders – offer significant potential for analyzing educational trends, diagnosing systemic issues, and formulating evidence-based management decisions. However, survey data are frequently compromised by respondent bias, methodological flaws in questionnaire design, sampling imperfections, and other factors that undermine validity and reliability. Consequently, the issue of data quality has become paramount amid ongoing education reforms and the rising demand for rigorous analytics to support evidence-based policy. The article examines the methodological aspects of using surveys in research in the field of general secondary education and outlines the key threats to validity and reliability, in particular the effect of social desirability, the wording of questions, the influence of the data collection tool, the unrepresentativeness of the sample, and the problem of respondent discipline. Approaches to minimising bias are analysed, including methods of question construction, scale balance, the use of control questions, and statistical procedures for assessing reliability, such as Cronbach's alpha coefficient. Particular emphasis is placed on the necessity of robust instrument design and post-collection verification procedures to ensure accurate generalizations and allows for informed conclusions to be drawn about processes in general secondary education institutions. In addition, the expediency of combining quantitative and qualitative methods of analysing survey results is emphasised, which contributes to a deeper understanding of educational processes and the context of interpreting the data obtained. The approaches presented can be used by researchers, analysts and managers to improve the reliability of educational surveys and develop effective analytical practices in the field of education. In particular, the use of survey tools in a monitoring study of 100 pilot schools in the context of the implementation of the New Ukrainian School reform is highlighted.

Key words: educational indicators, educational reform, education system, European Union, evidence-based policy, standardization, Ukraine.

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ОПИТУВАННЯ ЯК ІНСТРУМЕНТ ОТРИМАННЯ ВАЛІДНИХ І НАДІЙНИХ ДАНИХ У ДОСЛІДЖЕННЯХ У ГАЛУЗІ ЗАГАЛЬНОЇ СЕРЕДНЬОЇ ОСВІТИ

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Резюме. Розглянуто поняття опитування, що є одним із найпоширеніших і гнучких методів збирання емпіричних даних у дослідженнях, що стосуються функціонування й розвитку системи загальної середньої освіти. Його переваги – масовість охоплення, відносна оперативність та можливість

виявлення суб'єктивних оцінок учасників освітнього процесу – забезпечують значний потенціал для аналізу освітніх тенденцій, виявлення проблем і формування рекомендацій для ухвалення управлінських рішень. Водночас отримані в результаті опитувань дані часто зазнають впливу упереджень респондентів, методичних помилок анкетування, недосконалості вибірки та інших чинників, що знижують їх валідність і надійність. Саме тому питання забезпечення якості даних набуває особливої ваги в умовах реформування освіти, зростання ролі доказово обґрунтованої освітньої політики та підвищених вимог до достовірності аналітики. Розглянуто методологічні аспекти використання опитувань у дослідженнях галузі загальної середньої освіти, окреслено ключові загрози валідності та надійності, зокрема ефект соціальної бажаності, формулювання запитань, вплив інструменту збирання даних, нерепрезентативність вибірки та проблеми відповідацької дисципліни. Проаналізовано підходи до мінімізації викривлень, включаючи методи конструювання запитань, баланс шкал, використання контрольних запитань і статистичних процедур оцінювання надійності, таких, як коефіцієнт α Кронбаха. Особливу увагу приділено значенню якісно побудованого інструментарію та процедурі перевірки даних після збирання, що підвищує точність узагальнень і дозволяє формувати обґрунтовані висновки щодо процесів у закладах загальної середньої освіти. Додатково наголошено на доцільності поєднання кількісних і якісних методів аналізу результатів опитувань, що сприяє глибшому розумінню освітніх процесів і контексту інтерпретації отриманих даних. Представлені підходи можуть бути використані дослідниками, аналітиками та управлінцями для підвищення достовірності освітніх опитувань і розвитку ефективної аналітичної практики в освітній сфері. Зокрема висвітлено застосування інструментарію опитування при моніторинговому дослідженні пілотування 100 шкіл у контексті запровадження реформи Нової української школи.

Ключові слова: освітня реформа, система освіти, Європейський Союз, Україна, освітні показники, стандартизація.

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Problem statement. Amidst the active reform of the general secondary education system – characterized by a profound transformation of curricula, teaching methodologies, management approaches, and principles of educational interaction – the challenge of obtaining credible, valid, and reliable data has become particularly urgent. Modern educational policy is rooted in evidence-based principles, which necessitate making management decisions based on real empirical data gathered through systematic research. In this context, the survey serves not only as a traditional method of data collection but also as a strategic monitoring tool. It allows for a deeper understanding of educational processes, an evaluation of the effectiveness of implemented reforms, and a timely response to emerging challenges.

The application of surveys in general secondary education research provides a means to identify the dynamics of change within the learning environment. This method captures the attitudes of key participants – students, educators, school administrators, and parents – toward innovations, determines satisfaction levels regarding the quality of educational services, and facilitates the analysis of core trends in educational development. Surveys allow for the collection of a wide range of opinions and assessments, which form the basis for effective decision-making at both the local and national levels.

The relevance of the research topic is also determined by the need to develop a national education quality monitoring system that meets European standards of transparency, validity and reliability of data. Ukraine's participation in international initiatives such as PISA, TIMSS and TALIS highlights the importance of using surveys as a universal mechanism for collecting comparative data, which enables the assessment not only of academic achievement, but also of the socio-psychological, managerial and organisational aspects of the educational process.

Surveys remain a central method of data collection in educational analytics due to their flexibility, relative cost-effectiveness, and capacity for large-scale coverage of participants in the educational process – including students, teachers, parents, and administrators. At the same time, the credibility of any conclusions depends on two key characteristics of the instrument: validity (whether the tool measures what it is intended to measure) and reliability (the stability

and internal consistency of the measurement). Neglecting these methodological threats leads to flawed interpretations of the processes within general secondary education institutions and, consequently, erroneous management decisions.

Analysis of recent studies and publications. The issue of using surveys as a tool for monitoring and obtaining valid data in research has been addressed in the works of many Ukrainian scholars, who considered them an effective means of assessing the state of the educational process, identifying development trends, and making informed management decisions. O. Pometun considers surveys to be an important means of gathering feedback from participants in the educational process in order to assess the quality of reforms [1]. L. Lyashenko emphasises the importance of surveys for monitoring the implementation of the competence-based approach in the new Ukrainian school [2]. D. V. Sytnik considers questionnaires to be one of the key methods of monitoring research for diagnosing educational achievements [3]. L. Matokhnyuk considers practical recommendations for designing questionnaires (including Google Forms) for valid monitoring surveys in education [4]. Foreign scientists also highlight surveys as a key tool for collecting feedback and monitoring in the field of education. For example, studies by American and European experts emphasise that surveys provide important information about the beliefs, attitudes, behaviour and characteristics of participants in the educational process, allowing learning to be adapted to the needs of students and enabling high-quality analysis [5].

Surveys enable individual characteristics of students to be revealed, problem areas in learning to be identified, and cooperation between students and teachers to be fostered, which increases motivation and academic performance. In particular, international studies using questionnaires identify different cultural contexts and methodological approaches, which is important for the validity and reliability of results in different education systems [6].

Research objective. The purpose of this study is to provide a theoretical substantiation and analysis of the methodological aspects of using surveys as a tool for collecting credible data in the field of general secondary education. Furthermore, the study aims to identify the key factors that ensure the validity and reliability of the results obtained within the framework of evidence-based educational policy.

Problem statement. To achieve the objective, the following tasks must be accomplished: analyse the potential and specifics of surveys as a method of collecting empirical data for analysing trends in the development of the general secondary education system; identify the main threats to data quality, in particular the influence of the social desirability effect, methodological errors in the formulation of questions and problems of sample representativeness; outline methodological approaches to minimising distortions, considering methods of constructing instruments, the use of control questions and statistical verification procedures (in particular, Cronbach's alpha coefficient); justify the importance of post-collection data verification and the advisability of combining quantitative and qualitative methods of analysis to form valid conclusions in management practice.

Presentation of the Main Research Material. In the process of conducting educational research, a primary objective is ensuring the validity and reliability of data obtained through surveys. This is critical because monitoring results are utilized for management decision-making and the formulation of educational policy, as mandated by the Procedure for Monitoring the Quality of Education established by the Ministry of Education and Science of Ukraine [7].

The results of educational questionnaires are significantly influenced by the phenomenon of social desirability bias. This occurs when respondents – particularly students and teachers – tend to provide answers aligned with social expectations. Such a tendency can lead to the systematic inflation of positive evaluations and the downplaying of existing problems. This issue has been extensively researched in both Ukrainian and international literature and is detailed in studies on measurement methodology and the psychology of social response [8].

The transition from paper-based questionnaires to electronic data collection forms has opened new opportunities for large-scale monitoring and rapid information gathering. However, it has simultaneously introduced the problem of mode effects. While the overall structure of responses often proves comparable across different modes, sensitive or behavioral questions may yield divergent results. Consequently, when employing mixed-mode approaches, it is recommended to conduct scale invariance testing and, if necessary, apply weighting or statistical corrections [9].

A key element in preventing many of these issues is the high-quality design of the instrument itself. Poorly phrased items, double-barreled questions, asymmetrical scales, and a lack of logical ordering reduce construct validity. Consequently, methodological guidelines emphasize the necessity of pilot studies, cognitive interviews, and expert reviews prior to the large-scale administration of a questionnaire [10].

The procedure for creating a valid questionnaire in the field of general secondary education involves the clear conceptualization and operationalization of constructs (e.g., learning motivation, classroom climate, teacher professional self-esteem) based on a theoretical framework and existing instruments. This process also requires pilot testing with a sufficient sample size to perform an initial check of question clarity and the internal consistency of scales.

Structural validation of psychometric instruments is usually based on the sequential use of exploratory factor analysis (EFA), which allows identifying the latent structure of the construct, followed by confirmatory factor analysis (CFA) on an independent sample. This two-stage procedure increases the reliability of the conclusions and allows testing the invariance of the model between different groups, which is critically important in cross-cultural and comparative studies [11, 12]. Reliability assessment should include an analysis of Cronbach's α coefficient, which reflects the internal consistency of the scale, and McDonald's ω , which provides a more accurate assessment of overall reliability in the context of construct multidimensionality [13, 14]. If possible, it is also desirable to conduct a test-retest analysis or apply multicomponent factor models, which allow for separate assessment of the stability of general and specific factors. An important practical aspect is preliminary sample planning: determining the selection strategy (stratified or cluster), as well as justifying the required sample size, taking into account future statistical procedures, in particular the ratio between the number of observations and the number of parameters in CFA, which usually recommends adhering to the minimum N/p ratio sufficient for the stability of estimates [14, 15].

During the data collection stage, it is advisable to combine several quality control mechanisms – control elements of attention, monitoring of completion time, detection of straight-lining patterns, and verification of open-ended responses – and simultaneously document these procedures in the study protocol or preregistration to increase transparency. When cleaning data, it is recommended to remove duplicates and correctly handle missing values (multiple imputation or well-founded analysis of complete cases), analyse distributions, and identify anomalies or rapid completions [16].

In the context of the implementation of the New Ukrainian School (NUS) reform, which began in 2017 [17], surveys of teaching staff at pilot institutions became a key tool for public monitoring and policy evaluation. Surveying teachers and principals of 100 pilot schools, which were the first to test the updated State Standard for Primary Education, provided executive authorities with the necessary primary data for systematic evaluation of the effectiveness of the reform's implementation at the local level. This made it possible to analyse not only the characteristics of educational methods, but also to identify institutional barriers, shortcomings in management decisions and the overall readiness of the system for large-scale transformation. The importance of such studies is due to the fact that, within the framework of inclusive public administration, it is precisely the subjective assessments of stakeholders (policy implementers)

that make it possible to identify the risks of policy failure in a timely manner, to identify the gap between strategic goals and actual changes, and to promptly adjust public policy on the basis of evidence-based policy making [18].

The validity of such surveys is critically important for justifying the management cycle, as the success of scaling the New Ukrainian School (NUS) reform to the national level depends on the quality of the metrics obtained. Given the risks of data distortion – specifically social desirability bias and the tendency toward loyalty to upper management – it is essential to minimize the influence of «administrative resources». This requires management authorities to employ neutral instrumentation, balanced scales, and control indicators [19]. To ensure democratic governance during the surveying process, it is vital to account for the administrative hierarchy and potential pressure from external expectations; this necessitates strict adherence to anonymity, voluntary participation, and transparency in data collection procedures.

Conclusions. Survey methods can serve as a reliable and valid source of empirical data for research in general secondary education, provided that their design, piloting, and processing adhere to modern methodological standards. Ensuring the high quality of such instruments requires meticulous question phrasing, conducting pilot waves, and applying structural validation (specifically the EFA → CFA sequence). Furthermore, it necessitates multi-level data cleaning and the implementation of control mechanisms designed to detect inattentive or artificially consistent responses. Adhering to these approaches minimizes the impact of social desirability, mode effects, and other sources of distortion, thereby enhancing the credibility of the findings and the management recommendations derived from them.

In the context of the pilot implementation of the «New Ukrainian School» reform between 2017 and 2020, surveys of teaching staff became a pivotal tool for building an evidence base. Valid and reliable questionnaires provided a systemic understanding of how educational practices were being transformed at the school level, how educators perceived these changes, and what barriers emerged during the implementation of the new standard. The collected data not only ensured monitoring of the reform's progress but also facilitated adjustments to management decisions, the content of methodological support, and strategies for scaling NUS to the national level. Ultimately, this strengthened the role of evidence-based practices in the formulation of general secondary education policy.

Overall, enhancing the quality of survey research in education is grounded in methodological rigor at every stage – from conceptualization and instrument construction to data collection, cleaning, and statistical verification. It is precisely this holistic methodological sequence that creates the necessary conditions for deriving sound conclusions and making effective management decisions throughout the reform of the educational system.

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