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SEQUENTIAL EXPLANATORY DESIGN IN RESEARCH ON DIGITIZED VOTERS-USERS: ETHICAL ASPECTS, DIAGNOSIS OF METHODOLOGICAL CHALLENGES AND RECOMMENDATIONS FOR RESEARCHERS

Abstract

The sequential explanatory design is one of the possible procedures for implementing mixed methods research. Within one study, both quantitative and qualitative approaches are used, but the collection and analysis of data in the quantitative phase precede the collection and analysis of data in the qualitative phase. The scheme is presented from the perspective of media studies and political science, using the example of researching digitized voters-users. The main goal of the article is to provide a methodological reflection on the sequential explanatory design and indicate the procedure, possibilities, and benefits of its use. Crucial methodological challenges that accompany the research process have been identified, focusing on topics such as the role of the researcher, the preparation of the study, and its course. The ethical aspect of the conducted research is highlighted. The article also presents several recommendations for researchers implementing the sequential explanatory design.

Keywords: sequential explanatory design, mixed methods, user research, voter research, research ethics

Introduction

'As such, mono-method research is the biggest threat to the advancement of the social sciences' – such a bold thesis has been put forward in the article "On Becoming a Pragmatic Researcher: The Importance of Combining Quantitative and Qualitative Research Methodologies" (Onwuegbuzie, Leech, 2005, p. 384), which

appeared in the *International Journal of Social Research Methodology*. Does limiting oneself to using a single method within a given study hinder the progress of an entire scientific field? Certainly, the use of mixed methods as a bifocal lens to be used for describing the world (Willems, Raush, 1969) can be a step towards development in flexibility, research collaboration, and gaining detailed perspectives while keeping an eye on the bigger picture (Onwuegbuzie, Leech, 2005).

The implementation of mixed methods is simply a combination of quantitative and qualitative approaches within a single study (Tashakkori, Creswell, 2007). In this way, we obtain two types of data – one type can supplement, enrich or develop the other (Tashakkori, Johnson, Teddlie, 2020). Strengthen reasoning, explain complex issues and support research insight, which seems to be a particularly desirable form of conducting research in the fields of social communication and media sciences. In media user research, the mixed approach makes it possible, for example, to analyse usage practices (e.g. time spent, users' devices, frequency of undertaking a given activity) on one hand, and to search for qualitative justification for them (e.g. the motivations for undertaking a given activity) on the other. Meanwhile, in the analysis of voters' attitudes, the adoption of a mixed methods approach may begin with interviewing members of a given group about the potential reasons for voting, and in the second quantitative phase, the ideas indicated by the respondents may be tested in surveys of a representative sample.

In the face of the "mediation of everything" (Livingstone, 2009), datafication and dynamic technological development, the combination of quantitative and qualitative approaches allows for a more in-depth reflection on the media, political or, going further, social reality. It is at the same time emphasized that 'in today's world, social issues are more complex, interrelated and often involve many interacting systems' (Sułkowski, Lenart-Gansiniec, 2023, p. 9). This multidimensionality, multicontextuality and multithreading is particularly noticeable from the perspective of the analysis of social communication processes and technology.

In media studies, both quantitative and qualitative methods are often used, but utilizing both simultaneously within a single study is less common. Such methodological strategies are more frequently encountered in larger research projects involving teams with expanded structures. Based on literature studies, it should be noted that researchers who utilize mixed methods research usually do not determine precisely the type of methodological system adopted for the study. The increase in Polish usage of the nomenclature adopted from English-language literature may have desirable effects – it could systematize the terminology and contribute to the development of the field of social communication and media studies, which in Poland is still a nascent, constantly developing research discipline (Hofman, 2019).

The main objective of this article is to reflect on the methodology of sequential explanatory design and to indicate the process, capacities, and benefits of its usage as seen in research on digitized voters-users. A portion of the paper is also devoted to the universal ethical aspects of conducting research using the procedure described.

In addition, key challenges in the field of mixed methods research and studies on digitized voters-users are presented, with recommendations on how to eliminate or neutralize setbacks. A significant research gap has been noticed in studies on mixed methods in the social sciences – the article aims to inspire a search for new methodological solutions and support young researchers of the media and the electoral process, offering practical guidelines on the suggested course of their research.

Sequential explanatory design

Mixed methods procedures can be broadly divided into two types – parallel, in which both phases of the study occur at the same time, and sequential, where the phases follow one another (Creswell, Plano Clark, 2007). The choice of a given procedure is influenced by many factors, including data hierarchy, theoretical basis of the study, and data mixing strategy (Creswell, 2013). John W. Creswell et al. (2003) list six main designs, three of which relate to sequential research (see Table 1): the sequential transformative design, the sequential exploratory design, and the sequential explanatory design.

RESEARCH PHASE	SEQUENTIAL DESIGN		
	TRANSFORMATIVE	EXPLORATORY	EXPLANATORY
PHASE I	QUANTITATIVE / QUALITATIVE	QUALITATIVE*	QUANTITATIVE*
PHASE II	QUALITATIVE / QUANTITATIVE	QUANTITATIVE	QUALITATIVE

* This type of data has a higher priority.

Source: own study based on Andrew, Halcomb (2007).

The first of these – the sequential transformation design – is dependent on the adopted theoretical perspective, which guides the project to a stronger degree than the methods themselves. With this design the study is conducted in two phases, and the researcher can start with either of them (QUANT/QUAL → QUAL/QUANT). This type of approach is used, for example, in research on inequality, ethnicity or within the feminist paradigm (Kroll, Neri, 2009). The sequential exploratory design, on the other hand, first assumes conducting a qualitative study, where this data is prioritized over the quantitative (QUAL → QUANT). The final design mentioned, and the focus of this article – the sequential explanatory design – refers to a situation in which the quantitative phase is completed first, followed by the qualitative phase (QUANT → QUAL) (Creswell, 2013). It must be noted, however, that the literature describes other types of procedures, along with various combinations of the above-mentioned models.

According to the commonly-used nomenclature, in the sequential explanatory design, the qualitative phase serves to explain the quantitative phase. The research procedure consists of five main steps: quantitative data collection, quantitative data analysis, qualitative data collection, qualitative data analysis, interpretation and conclusions (see Figure 1).

QUANTITATIVE PHASE	QUANTITATIVE PHASE	QUALITATIVE PHASE	QUALITATIVE PHASE	INTERPRETATION CONCLUSIONS
DATA COLLECTION	DATA ANALYSIS	DATA COLLECTION	DATA ANALYSIS	

Figure 1. Sequential explanatory design

Source: own study.

Often, the foundation for initiating a study using this design is a theory that provides a certain 'inspiration to launch the research procedure' (Kolasińska-Morawska, 2023, p. 27). In the first step of the procedure, quantitative data is collected, and this process is preceded by the creation of tools (e.g. a survey questionnaire) or the selection of an appropriate source of quantitative data. The researcher then proceeds to analyse these results, which can be treated as the second step of the research procedure. On the basis of phase I, tools used in the qualitative phase (e.g. interview script) are developed. In the third step, qualitative data is collected, which initiates the second phase of the study. This type of data is analysed in the next step. It should be noted here that the sequential explanatory design does not limit the researcher to collecting and analysing just two types of data – 'mixing' also occurs in the final stage of the study, while interpreting and drawing conclusions from both phases (see Figure 1). There are numerous strategies for presenting the conclusions of a study utilizing mixed methods – depending on the needs (e.g. adopted timeline, target group of the study, subject matter) they can be presented in a sequential or combined manner (Bryman, 2007).

In the discussed design, the quantitative component has a higher priority than the qualitative one. This means that the qualitative phase supports the conclusions of the study obtained during the analysis of a given population, adds in-depth perspectives, enriches with context and clarifies the results (Kroll, Neri, 2009). It is an 'interpretative support for the quantitative material' (Kolasińska-Morawska, 2023, p. 27). This design is at times used to isolate interesting, outlier or dominant subpopulations within a broader group, and to continue the qualitative phase within these only. Researchers also utilize it when surprising results are obtained during the quantitative phase (Kolasińska-Morawska, 2023, p. 27).

Sequential explanatory design and the research on digital voters-users

Throughout the research process, many decisions have to be made. One of them is the selection of an appropriate methodological approach, based on the formulated research questions or set research goals. Another factor influencing the methodological decision may be – depending on the research subject – the respondents themselves. In the case of this article, the focus is on the group of digitized voters-users, adopting both a political science and a media studies perspective. A focus on the given group allows the creation of richer design profile, helps identify challenges related to conducting research using the design, and provides more accurate recommendations.

The group of the digitized voters-users is a cohort of people who were born into an internet-based, digitized world, and which is currently entering adulthood. They are intensive media users, almost constantly 'plugged-in' to the internet. They're members of Generation Z: global, technological and active online (Twenge, 2019; Zdunek, 2024). As they come of age, they acquire a new role as voters. From the perspective of a media expert, this is a particularly interesting group, giving for the first time a chance to analyse a population that is unfamiliar with analogue-only life. In addition, digitized adolescents experienced a global mental health crisis – the COVID-19 pandemic (Zdunek, 2023). They are interested in current political and social issues, as well as climate change. In the 2023 Polish parliamentary elections they proved that contrary to assumptions about their apathy towards the fate of the state, they are active citizens, generating unprecedented voter turnout in the youngest age group.

New groups of respondents require a search for novel methodological solutions. For example, in Denmark in 2015, a group of digitized voters was studied using so-called digital diaries, a type of survey that can be filled out using a smartphone application (Ohme, 2019). Another idea for media analysis of the youth cohort is conducting research on the basis of screenshots of their smartphones' home screens to determine the day-to-day usage of these devices (Kopecka-Piech, 2019). Innovative methodological approaches can also involve combining quantitative and qualitative methods: for example, integrating survey-based research or quantitative content analysis with focused group interviews, observation, qualitative content analysis, or personal interviews. The use of the sequential explanatory design for the study of this digitized cohort allows one to rely on quantitative data while considering the perspective of the group of respondents. By starting with the quantitative phase, the researcher gains some insight into the subject, and notices the results that characterize the group as well as the prevailing trends. The qualitative phase allows them to delve into the respondents' point of view and create a more vivid picture of the phenomena or processes being examined.

Ethical aspects of sequential research

According to Ned Kock (1999, p. 97), "The temptation of having to spend just a few hours rather than years of work to fulfil a publication quota can be very strong for some." Throughout their studies, researchers should adhere to ethical principles that aid in decision-making and define both appropriate and objectionable practices. Basic ethical principles include, among others, honesty, objectivity, respect, responsibility, reliability, transparency and confidentiality (Shamoo, Resnik, 2015). Working in accordance with recognized ethical standards serves the goals of research activities, such as advancing knowledge, remaining faithful to facts, and avoiding errors (Resnik, 2020). Respect, knowledge, and application of these principles, which find their source in essential moral and social values, are indispensable to researchers, including those working in the field of social sciences.

By conducting research according to sequential explanatory design, a researcher generates two types of data necessary to evaluate a study's results. These should be made available for inspection – either as part of open repositories (e.g. the Jagiellonian University Repository) or as an annex to the text (e.g. as an interview transcript). The form of the shared data will be varied according to the research techniques chosen within the sequential explanatory design. It is also worth publishing the research tools used, allowing for a possible repetition of the study in the future verbatim or with a different population. When designing and conducting research, it is also worthwhile to utilize available tools in order to address ethical dilemmas. One such tool is the Graduate Institute Research Ethics Checklist (The Geneva Graduate Institute, 2022), which consists of 15 universal questions providing guidelines for conducting research in an ethical manner.

When conducting studies on young voters-users who pertain to behaviours and political experiences, i.e. issues that may be perceived as sensitive, participants must be ensured full anonymity in both phases. It should be emphasized, for example, in the invitation to complete a survey or in the written consent for participation in an interview. In addition to proper anonymization during data processing, attention must also be paid to this issue at other stages of the study. For instance, when organizing focused group interviews, an appropriate break should be maintained between sessions to prevent group participants from contacting each other. Furthermore, respondents taking part in the same session should only know each other's first names or pseudonyms. If participants are entitled to compensation for participating in the study, during the collection of personal data for accounting purposes they should be assured of the maintenance of their anonymity.

Additionally – especially in the case of young adults – consent forms for participation in the study can be checked with the Jasnopis tool. The tool identifies, among other things, difficult, scientific words, which can be explained in a more detailed and accessible manner, such as 'anonymized, i.e. not containing data that would

allow myself to be identified.' According to international standards, participants in a study must be able to withdraw their participation consent at any time.

Researchers should consider whether it is worthwhile to directly ask about political preferences during the qualitative research phase (if individual or group interviews are to be conducted). When working with a group of young respondents, inviting a psychologist to monitor the focus group or personal interviews is a commendable idea.

Among the contemporary ethical challenges faced by media researchers is the issue of conducting studies using data originating from the internet and social media. Particularly in the case of digitized citizens, the data generated on social media serves as a valuable source of information, the collection of which can form the first step of the sequential explanatory design. Challenges include: defining the boundary between the public and the private, receiving informed consent, ensuring anonymity, and avoiding harm (Townsend, Wallace, 2016). In recent years, leading research centres around the world have begun to create guides and manuals, attempting to establish ethical standards in this area and address the current needs of the researchers. The Association of Internet Researchers can be indicated as a determinant of good ethical practices in conducting internet-based research (including social media). In 2019, the organization released *Internet Research: Ethical Guidelines 3.0*, which is of help to any researcher dealing with topics that require the use of internet data.

Identification of challenges and recommendations for the researchers

It should be remembered that the challenges posed by the use of sequential explanatory design in media and political science research are analogous to those appearing in the traditions of both quantitative and qualitative research. This suggests new problems for the researcher to address. However, it is important to look at this issue from a different, more positive perspective – the use of sequential explanatory design also provides double the advantages. The positives and negatives that originate from the quantitative and qualitative methods can, when used sequentially, mutually eliminate certain difficulties and supplement any gaps.

On the basis of the author's research experience (Zdunek, 2023; Gloc, 2024) and a review of the literature on the subject, five main challenges in conducting research in accordance with the assumptions of the sequential explanatory design have been identified (see Figure 2). Each of the challenges is accompanied by practical advice that can help combat or mitigate the problems mentioned.

Figure 2. Sequential explanatory design: select challenges

Source: own study.

The first challenge when using this design is certainly the need to devote more time to the research process, as two consecutive phases require an extended study schedule. However, thanks to the lack of simultaneity, a single researcher can implement the plan in its entirety. When spreading research over a longer period of time, it becomes crucial to store data appropriately and securely. The recommended solution is to follow the 3-2-1 rule, i.e. keep them in three copies (external hard drive, university cloud server, own computer's disk), use two storage technologies, and store one of the copies in a different location (keep the external hard drive outside of the workplace).

The second challenge in conducting research using mixed methods is the researcher's skill, and whether they will be able to carry out both, very distinct from one another, phases. They must demonstrate not only the ability to design tools of a completely dissimilar type, but also to analyse two types of data, and, at the end of the process, to draw conclusions and interpret data on the basis of both phases' results. Additional difficulties arise if, in the qualitative phase, the researcher decides to conduct individual or focused group interviews and moderate them on their own. Jolanta Lisek-Michalska (2002), highlighting the role of a moderator

in this type of research, even considers whether focused group interviews are still a qualitative research method or already an art form.

The third challenge is related to the research tools used in the first and second phases of the study. They affect the credibility of the research project, reliability, repeatability and eventual reproducibility (Lewis, Saunders, Adrian, 2009). In order to verify and assess the validity of the tool, pilot studies are carried out, which are recommended before each of the planned phases of the design. Pilot research usually involves acquiring, analysing and interpreting the empirical data obtained in order to evaluate the assumed research methods and techniques. This is an important stage that allows one to review the questions and modify the tool to be used in the actual examination. A research tool can be a delicate thread connecting the quantitative and qualitative phases, and the assumption of 'mixing' can also be realized at this basic stage. A qualitative tool created on the basis of the results of the quantitative phase will allow for the generation of qualitative 'explanatory' data. A good practice is to describe or compile in a table the points of contact between the tools used in both phases.

The fourth challenge pertains to conducting research on young individuals. The group of young digitized voters-users is willing to cooperate and engage in conversation, but possesses certain characteristics that may create difficulties in the research process. It is important for the researcher to have a good understanding of the group that is the focus of the study. The author advocates for embracing research openness and involving the target group at every stage of the process. A creation of an advisory group for the researcher is suggested, composed of individuals with characteristics or demographic features similar to the respondents'. This ensures greater inclusivity in research and provides it with a truly social dimension. In turn, the advisory group provides invaluable support to the researcher and allows them insight into the perspective, attitudes, and expectations of that group, aside, one could say, from the study itself.

Understanding the characteristics of the group is crucial both in the quantitative and qualitative phases. For example, when designing a survey, it is worth keeping in mind that the main device used by Generation Z is a smartphone (Krajowy Instytut Mediów, 2022). Therefore, a survey should be adapted for being displayed on these devices. Additionally, the survey layout should be engaging and varied (as is the case with surveys designed using tools provided by, e.g. Google and Microsoft). Generation Z is a generation of gamers (Medienpädagogischer Forschungsverbund Südwest, 2022), so elements of gamification may be added to the application, such as collecting points, time challenges, or difficulty level markers. Characteristics of this age group include multiscreening and multitasking; they use several devices simultaneously (Twenge, 2019; Zdunek, 2024). Their attention is therefore diffused, during survey completion as well. In order to revive interest, it may be helpful to add a percentage completion counter to the survey, use variable question order, or include surprising or unrelated questions. In the case of the

qualitative phase, where individual or focused group interviews are planned, young respondents can be asked not to use their phones during the study – this can be established as part of the initial opening contract of the meeting. Creative elements (such as list-making, drawing, and stimulating material) or gamification may also be added here.

The fifth challenge is to consider the current context, as no research occurs in a vacuum. The research process is situated within a broad political and social context, which must be considered when conducting studies on contemporary youth. The data obtained during research should be examined in relation to the environment, which is a clear advantage of the sequential explanatory design, as its qualitative phase helps contextualize quantitative data. The researcher should keep this in mind when reporting obtained results and provide an accurate description of the socio-political context, especially in studies involving young voters-users. This will allow them a better understanding of the respondents' answers (if individual or group interviews have been chosen).

Summary

In every field, including science, one can observe leading trends, focus on certain subjects, and dominant currents around which the scientific debate revolves. In the case of this article, the focus is on the fundamentals, proposing a methodological reflection on one of the possible strategies for conducting analysis – the sequential explanatory design. The author suggests that researchers using mixed methods should specify the type of research design they employ. This helps to understand the research process and the data importance hierarchy.

In the changing media environment and amidst extensive social transformations, relying solely on quantitative research may not provide a complete picture of complex issues. However, using only a qualitative approach may not be sufficiently credible in the face of large datasets, datafication, and algorithmization. Combining quantitative and qualitative approaches is one of the solutions for conducting research on young, digitized voters-users. The ongoing social change is particularly noticeable in the attitudes, opinions, and concerns of young people. Therefore, it is crucial in research on this age group to not only employ innovative techniques but also to combine research approaches and traditions in order to deepen one's understanding of the subject and enrich analysis with present-day context.

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