

RESEARCH, DATA COLLECTION AND ETHICAL ISSUES: LESSONS FROM HINDSIGHT

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Research involves a systematic process of investigating a problem or phenomenon with a view of solving the problem or providing a new insight in the problem. The essence could be to describe, explain, predict, analyse, control or prescribe solutions to the problem. Whatever the goal of the research, there are expected processes to be followed for it to qualify as scientific research whose findings will be accepted. Typically of most PhD researches, a research student is expected to collect and analyse primary data in addition to the findings from the literature. The process of data collection, especially in social-sciences where the built environment arguably belongs, often involve interaction with people. In order to protect the fundamental right of the participants in research and ensure their anonymity, certain ethical guidelines and issues must be carefully considered before setting out for the data collection. The paper is aimed at creating awareness about these simple but delicate issues regarding ethical considerations during research. The authors drew on their personal experience, as PhD researchers, to create awareness about salient ethical issues regarding research data collection. The paper highlighted the process for a 'scientific research' and different types of data collection involving qualitative research. The paper discussed ethical issues related to data collection and concluded by signposting the likely ethical pitfalls and how to avoid while carrying out a research.

Keywords: data collection, ethical issues, research process, researcher, qualitative data.

INTRODUCTION

One of the generally acceptable ways of increasing the frontier of knowledge is through research. Research often involves a systematic process of gathering data and information for analysis with the aim of advancing knowledge in any field of learning. According to Bajpai (2011), refers to 'a systematic and scientific procedure of data collection, compilation, analysis, interpretation, and implication pertaining to any problem.' The essence of research is to provide answers to intellectual questions and solutions to practical problems through the application of systematic methods. However, for a process to be regarded as research, it must meet some certain requirement. According to Kumar (2008), every research must be undertaken within a framework of as set of philosophies; use procedures, methods and techniques that have been proved to be valid and reliable; and designed to be unbiased and objective.) A good research process must be controlled, rigorous, systematic, valid and verifiable, empirical and critical (Kumar, 2008). In addition to these requirements, there is

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growing concerns about ethical issues in research, especially where human beings are involved.

The current plethora on ethical considerations specifically in the context of scientific research suggests that the 'ethicism' is one of the four main tendencies operating in contemporary scientific research. The others are reported to be empiricism, instrumentalism and postmodernism (Edwards and Mauthner, 2012). While scientific researches are heavily dependant on empirical investigations, the tendency to see scientific research in ethical terms, as if its aim were to achieve ethical goals or to exemplify ethical ideals is exceptional. Unlike in early traditional research; which was entirely enclosed with customary boundaries is now beginning to see ethical considerations as a 'must' rationale for every research (Miller and Bell, 2012).

In this paper, the most important ethical issues are addressed as reflect drawn from authors personal experience while collecting data for doctoral research. After a short description of the qualitative data collection process, and the advocacy role of construction professionals towards research objectives, the authors will attempt to highlight the hindsight issues, pitfalls and conflicts that contemporary scientific researchers have to deal with, when undertaking or participating in similar research, especially in the built environment context.

The next section of this paper reviews the relevant concepts regarding research types, research paradigm data collection methods and ethical issues. Section 3 discusses the research methodology. Section 4 is dedicated to the analysis of the ethical issues encountered by the authors while collecting primary data via semi-structure interviews as part of their PhD research while section 5 concludes by discussing the ethical pitfalls during data collection via interviews and how to avoid them based on the hindsight of the researcher. The paper provides contributes to the body of knowledge by providing practical hints about the ethical issues during data collection, especially in qualitative and mixed methods researches, drawing on life experiences of the author. Early researcher in the fields of social sciences and built environment are expected to benefit from the insight provided in the paper.

REVIEW OF LITERATURE

Definition of Research

Literarily, the word 'research' is made up of two syllables: 're' and 'search', meaning 'to examine closely and carefully again (Kumar, 2008). According to Kerlinger (1986: 10), 'scientific research is a systematic, controlled empirical and critical investigation of propositions about the presumed relationships about various phenomena' Burns (1997) defines research as 'a systematic investigation to find answers to a problem'. Grinnell (1993) further adds that 'research is a structured inquiry that utilises acceptable scientific methodology to solve problems and creates new knowledge that is generally applicable.' It can be deduces from the above definitions that research is a structured process of finding answers into an enquiry in a systematic way through data collection, analysis and interpretation. For the purpose of this paper, the process must be conducted in an ethical manner, especially when human interactions are involved in the process of the data collection.

Classifications of Research

There are different classifications for research typologies from the literature. Kumar (2008) classified research into three perspectives: based on the applications of the research findings (pure and applied research), objectives of the study (descriptive, correlational, explanatory or exploratory research), and mode of enquiry used in conducting the study (structured and unstructured). According to Dudovskiy (2016), research can be classified according to the methods for data collection (e.g. quantitative or qualitative research), based on the period of data collection (longitudinal or analytical research), the nature of the research (descriptive, or exploratory research), application of the research findings (action research or policy-oriented research), or according to the research design (e.g. exploratory, explanatory or conclusive research). Generally speaking, research can be classified broadly into two according to the purpose of the research: fundamental or basic research and applied research. While basic research seeks to investigate the basic principles and reasons for occurrence of a particular event, process or phenomenon, applied research, on the other hand, aims at finding practical solutions to real life problems using well known and accepted theories and principles. Irrespective of the field of study, research is usually performed in line with a set of rules, concepts and procedures which are generally well accepted by the authorities working in a field of study.

Also known as theoretical research, basic research is not concerned with solving any practical problems of immediate interest. Its goals are to provide a systematic and deep insight into a problem, facilitate extraction of logical explanation to the problem, and draw conclusion on it. Generally speaking, basic research outcomes form the basis for applied research. Examples of basic research are found in most natural science studies. Applied researches are directed at solving real problems, using the acceptable research paradigm. The outcomes of applied research are meant to provide immediate application and practical use to current societal or organisational problems. Examples of applied research include experimental, case studies, and interdisciplinary researches as commonly found in applied sciences, social sciences, engineering and the built environment.

Research Paradigms

Since researches are meant to solve societal problems and increase knowledge base, the solutions provided are therefore, likely to be influenced by the researchers' paradigm. A research paradigm, according to Kuhn (1962) is a set of common beliefs and agreements shared between scientists about how problems should be understood and addressed. It is a shared world view that represents the beliefs and values in a discipline and that guides how problems are solved within the discipline (Schwandt, 2001). The chosen world view will affect how we think about the problem and we also influence how we go about investigating the problem. Every researcher has an opinion about what is truth and knowledge, and this view affects our thinking, beliefs and assumptions we make about the world, the society and ourselves. A paradigm is a social scientist way of describing a world view, which is informed by philosophical assumptions about the nature of social truth and reality. Research paradigms are characterised by its ontology, epistemology and, axiology as summarised in table 1 (Guba, 1990).

Table 1: Summary of research Paradigm and Philosophy

Research Paradigm (What is your worldview?)	Ontology (What is reality?)	Epistemology (How is reality known?)	Axiology (What is the value of the reality?)
Positivism	Scientism/Empiricism (There is only single reality)	Objectivism (Reality can be objectively measured)	Value-free
Constructivism	Idealism/Interpretivism (There is no single reality; but multiple realities)	Subjectivism (Reality is subjective; it is socially constructed)	Value-laden
Pragmatism	Critical Realism (Reality is constantly negotiated)	Relativism (Reality is relative; best method solved the problem)	Rationality (Value-bound)

At this juncture, it is important to state that there are many paradigmatic positions that can be adopted by a researcher (positivism, interpretivism/constructivism, subjectivism, pragmatism, critical realism). There is no ‘right’ or ‘wrong’ approach as long as they are matched with appropriate assumptions in terms of ontology, epistemology, axiology, methodology and method. Ontology is the philosophical position about the nature of reality and the existence of the entities (Easterby-Smith et al., 2012; Saunders et al., 2009). It is the study of being (Crotty, 1998) and answers the question: what is the nature of truth or reality? Epistemology is concerned with the nature and forms of knowledge (Cohen et al., 2007). Epistemology focuses on what constitute valid knowledge and how such knowledge can be obtained. It is about the most appropriate ways of enquiring into the nature of the world (Easterby-Smith et al., 2012). Axiology, on the other hand, is the aspect of research philosophy that focuses on the place of value and ethical issues in the research process. Axiology is the study and nature of values and ethics. It answers the question: what do we believe is true? Methodology refers to the strategy, plan of action, process or design lying behind the choice and use of particular methods (Crotty, 1998). It answers the question: How should we study the world? Methodology refers to the strategy, plan of action, process or design lying behind the choice and use of particular methods (Crotty, 1998). It answers the question: How should we study the world? Methods are the chosen techniques or procedures used to gather and analyse data related to some research question or hypothesis. It answers the question: what tools can we use to acquire knowledge?

Data Collection Methods

Depending on the researcher’s paradigmatic position, research can be further divided into three based on the data collection methods: 1. Quantitative research, 2. Qualitative research, and 3. Mixed-method research (Johnson et al, 2007).

Quantitative Research: According to Bryman and Bell (2005), quantitative research entails ‘the collection and numerical data and exhibiting the view of relationship between theory and research as deductive, a predilection for natural science approach, and as having an objectivist conception of social reality’. Fellows and Liu (2003) defined it as a means of investigation that is related to positivism and seeks to gather factual data and to study relationships between facts and how such facts and relationships accord with theories and findings of any previously executed research. Some of the research strategies often adopted in quantitative research are survey, experiment and questionnaires. The most popular research methods of data collection and analysis for this method include survey, close-ended questionnaires, experiments, correlation and regression analysis methods, etc.

Qualitative Research: This is a form of an ‘inquiry process of understanding based on distinct methodological traditions of inquiry that explores a social or human experience (Creswell, 2013). It is aimed at providing an interpretation and depth of understanding of a particular phenomenon. With emphasis on people’s life experience, it operates under the assumption that reality is not easily divided into discrete, measurable variables. It merged based on the fact the quantitative methods failed to capture and express human feelings and emotions. It helps to provide rich data about real life people and situations while making sense of human behaviour and understanding behaviour within its wider context. Qualitative research method uses inductive reasoning by making specific observations and then draws inferences about larger and more general phenomena. Some of the research strategies used in qualitative research include: ethnographic research, grounded theory, phenomenological study, action research and case studies (Creswell, 2009). The most popular methods of data collection include interviews, case studies, observations, focus groups and questionnaires with open ended-questions.

Mixed-methods Research: According to Creswell and Plano (2007), mixed method research is a research design with philosophical assumptions as well as methods of inquiry. It involves the mixture of qualitative and quantitative data in a single study. It is a research in which the researcher uses the qualitative research paradigm for one phase of a research study and quantitative research paradigm for another phase of the study. It is based on the premises that the use of qualitative and quantitative approaches in combination provides a better understanding of research problems than either approach alone. Table 2 compares the three research methods in terms of their approach, strategies, purpose and data collection.

Table 2: Comparison of the three research methods

	Quantitative Method	Qualitative Method	Mixed Method
Approach	Deductive	Inductive	Abductive
Strategy	Experiment Survey	Grounded theory Phenomenology Ethnography	Mixed strategies Grounded theory and survey
Purpose	Generalisation	Contextualisation	Theory building
Process	Established guidelines	Flexible guidelines	
Procedures	Standard procedures	Particular procedures	
Focus	Narrow-angle lens.	Wide-angle lens.	Multi-lens focus.
	Testing specific hypotheses	Exploring understanding	Research questions
Nature of observation	Study behaviour under controlled condition	Study behaviour under natural environment	Study behaviour in more than one condition

Data Type	Statistical	Theoretical	Statistical and theoretical
Data collection	Questionnaires Experiments Survey	Interviews Observations Case studies	Mixed collection data

RESEARCH METHODOLOGY

Qualitative data collection is one method authors employed to achieve certain objectives of their research. For the purposes of this discussion, qualitative data collection method - ‘interviews’ shall be focused to identify and explain the ethical issues encountered.

Interviews can be defined as controlled conversations that the interviewer uses to obtain data required from the respondent by means of asking serious questions verbally under a controlled set of conditions (Creswell, 2009). Interviews are a key qualitative data collection method for scientific research. The reasons to use interviews as a research instrument in qualitative research vary. They are mainly useful in cases where there is need to attain highly personalised data, as well as in cases where there are opportunities for probing to get underlying factors for a pre-established phenomenon (Gray, 2004). They can also be considered as a valuable option when researchers need to obtain different perspectives from different sample populations (i.e. different job roles in the same organisations, same job roles in different organisations, and specialised experts in a single area). Where there are limited respondents and a good return rate is important, again interviews become one of the most viable methods. Whatever the reason is, it is conspicuous that interviews help researchers to discover and gain insights to the depth of a particular subject. The capability to offer a complete description and analysis of a research subject without limiting the scope of the research and the nature of participant’s responses is one of the biggest advantages obtained from interviews.

Due to the nature of information sought, which has to be in depth, accurate, and reliable, the interviewer has to find the right individual who has the desired information. These individuals can be purposively sampled or randomly sampled depending on the extent to which the investigation is for the individuals directly involved in the work, or those directly affected by the work.

The interviews discussed in this paper were conducted in three ways, face-to-face, telephone and web. Out of the three ways, face-to-face and web interviews were reported to be more success. From these two ways, the interviewer was able to pay attention to body language and expressions which may indicate levels of excitement or discomfort brought about by certain questions. Such question can highlight where there is a chance of information being falsified. Notwithstanding, the interviewer gets a perfect understanding about what is being said and what actually they feel to validate most of the points being discussed. However, there is always a significant role of the interviewer for his skill level to be able to keep the data collection process in focus. The authors used semi-structured interviews to prevent interviewees direct an interview in a direction best suiting their world view, as well as to capture the storytelling to some extent. This gives the process an optimum balance.

ETHICAL GUIDELINES IN DATA COLLECTION

All research is expected to conform to some lay down code of practice and meet minimal ethical requirements. The degree of severity of these requirements may vary, depending on the nature of the research and type of people to be involved in the process. Every school and discipline have their own peculiar ethical guidelines e.g. LSBU Code of Practice. However, in addition this, it is part of good practice be conscious of the general ethical issues and professional/association guidelines. To determine this, a researcher may be asked to fill form (light touch checklist) by answering some simple questions regarding the research. The questions will help determine whether the research qualifies for ethical approval or not. Some of the questions include: *Does the research involve vulnerable groups? Does the research involve secure data, or publically available data in which individuals can be potentially identified? Does the research involve access to records of personal or sensitive information concerning identifiable individuals? Does the research involve members of the public in a research capacity? Does the research involve visual or vocal methods where identifiability may be a concern?*

Once the answer to any of these questions (any many more) is positive, the research automatically qualifies for full ethical approval by a panel. The essence of the ethical application is to ensure that the researcher is aware of all the ethical issues surrounding the research and is well equipped on how to address them. The issues include:

1. **Safety:** Any possible risk to the researcher, the participants, other personnel and the environment must be identified and means of mitigating them suggested. The essence is to ensure that the research is conducted with minimal risk to all the parties involved.
2. **Autonomy:** Every participant must be informed of the right to freely choose to participate or not in the research, and the choice to opt out or withdraw from participation and any time. The researcher must make sure that the participants are made aware of this freedom before they give their consent to participate. Their decisions and opinion must also be respected accordingly.
3. **Informed Consent:** The consent to participate in the research must be obtained in an informed manner. The participant must not be cajoled. The informed consent can be written (in form of letter), verbal (in form of telephone conversation) or implied. Where the consent is verbal or implied, the researcher may be required to explain further why this option is chosen and to document it. If the interview is going to be recorded, the consent of the interviewee must also be sort and obtained before the interview.
4. **Anonymity and Confidentiality:** The identity of all the participants must be protected and their right to privacy ensured at all time. This includes their contact details which must not be shared with a third party without their consent.
5. **Data Protection:** The collected data must be protected, used only for the purpose for which it was collected alone and destroyed in an ethical manner at a stated time. In case of interview, the interviewee should be given a copy of the interview transcript to ensure that the transcription truly represent his/her opinion.

ISSUES ENCOUNTERED

Like in most of the cases, the authors collected qualitative data from people, in unknown conditions and circumstances with considerable social, ethnical, cultural, religious and gender differences. The issue of ethics in scientific research arises due to several reasons. By analysing interviews conducted, authors gather and interpret issues related to research ethics and copyrights.

There are two main linked issues associated with qualitative data collection. First, there is a concern that researchers should retain their academic freedom. The said 'academic freedom' should exclude from the acceptance of any type of contractual conditions that conflict with ethical practice, such as confidentiality of data and protection of participants' interests. Careful consideration need to be given when publishing and promoting such findings to avoid breach of participant's interests and confidentiality. Given that, it is arguable about the role of Government in restricting funding for such disputable research.

Second, and conversely, there is also a substantial concern that researchers need to protect themselves from any legal consequences that might arise if they unwittingly contractually agree to research funders' restrictions and then break that agreement. The litigation concerns behind implications of breached contractual obligations are notable.

Apart from above two major ethical issues that directly associated with the researchers, the following are few other issues that affect interviewers as well.

First and foremost, it is very important that the procedures for conducting interviews are clearly written and distributed among all participants in advance. The process need to be clearly explained to the interviewees beforehand. It is advisable that any permission is sought prior to the interview. Doing so, can avoid many misinterpretations during the interviews (i.e. if the interview process involves any audio/ video recording, the participants need to be well informed and that their informed consent is validated. Misinformation can lead sudden withdrawal of the participation). In practical sense, it is sometimes impossible to obtain written consent from all the interviewees. In such circumstances, the interviewee should be well informed that his/ acceptance to participate is treated as an 'informed consent', Failure to do so, may result in conflict of interest.

In the term of 'informed consent', it is again extremely problematic, when the participants are not well aware in advance about the questions being asked. In such cases, informed consent needs to be a continuous process and not just one-time event. For example, for a particular questions that the researcher decides request more clarification, verbal informed consent can be obtained by asking, 'Is it alright if we talk a little more about that?'. In such circumstances, the researcher need to hold the full responsibility to ensure that the interviewee being drawn into the research on partial information and therefore not to feel obliged to continue.

Second, when inviting the participants for interviews, it is essential to make them aware about the interview location. This need to be offered with possible alternatives to prevent inconvenience for the participants. It can be problematic to some extent, when there is less flexibility with the choice of location. And that could lead to lose the participant. Such pitfalls can be avoided by suggesting alternative interviewing methods (i.e. web interview). Third, the interviewer should be well aware of the issues associated with his/ her own safety when conducting the research. In a case where researcher needs to travel to conduct face-to-face interviews, it is highly

recommended to follow possible risk mitigation methods to avoid likely risks and hazards,

Privacy and confidentiality of the interviewees is the other important concern. Participants should normally be anonymised at every means that reveal their identities as well as their companies' identities. Unless their permission has been explicitly sought and only when it is extremely essential for the research objectives, the names can be used. If material is to be published or preserved as a public resource, then permission will need to be explicitly given, preferably in writing for all the specialities (i.e. use of name, recorded tape, pictures, etc). However, privacy was a significant issue as interviews sometimes probe unexpected areas. For example, to describe an extremely complex and subjective topic like 'company culture', inevitably many of the cultural settings is revealed during the interview. Interviews can delve into areas unanticipated at the outset. Furthermore, there is a danger of voyeurism and the temptation to focus on the most preferable elements of a study. The most common threat of breaching privacy and confidentiality is identified is in writing up of reports and, particularly, the use of quotes. Whilst individuals may not be identifiable to the general public, they may well be identifiable to, say, the peers also involved in the study. For similar reasons, it is difficult to give full information of the nature of a particular interview at the outset, hence informed consent is problematic. There are other specific issues such as taking sides in an interview or being biased. Biasness comes with politics and power. At the outset, the participant may feel obliged to take part in the interview, considering their relationship with the interviewer. In such circumstances, during the interview, the interviewer has some power over the direction of conversation. On the other hand, the interviewee may be drawn to discuss issues he would rather have kept silent about because of the relationship he has with the interviewer; which obviously lead to falsified information.

CONCLUSION: AVOIDING ETHICAL PITFALLS

Looking at the hindsight lessons learned, it is apparent that there is no single "trustworthy ethical formula" that can be applied to a qualitative research interviews particularly in scientific research. However, a critical evaluation of likely pitfalls can help developing a fair and ethical data collection process. In response to many of the ethical issues confronting the qualitative interviewer, it is recommended that researchers engage with the participants, ongoing reflectivity whilst responding sensitively to participants' needs.

To protect the confidentiality, authors suggest the use of pseudonyms or initials and, where possible, that the researcher change all other identifying details in reports. Another issue around privacy is the tendency to unconsciously reveal the identity of other participant through bulk invitation for interview. One way to avoid this pitfall is to use bcc instead of cc while sending messages to more recipients at the same time.

It is also notable that some participants may not wish to remain anonymous. The focus on the importance of providing detailed information to participants about the nature of the research and the need to gain written informed consent is also highly recommended.

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