
UNIT 2 EX-POST FACTO RESEARCH

Structure

- 2.0 Introduction
 - 2.1 Objectives
 - 2.2 Forms of Research Design
 - 2.3 Concept and Meaning of Ex-post Facto Research
 - 2.4 Characteristics of Ex-post Facto Research
 - 2.5 Differences between an Experimental and an Ex-post Facto Research
 - 2.6 Essentials/Requisites for Inferring Causal Relationships
 - 2.7 Steps of Ex-post Facto Research
 - 2.8 Strengths and Weaknesses of Ex-post Facto Research
 - 2.9 Concept of Post Hoc Fallacy
 - 2.10 Let Us Sum Up
 - 2.11 Unit End Questions
 - 2.12 Suggested Readings and References
-

2.0 INTRODUCTION

The present unit will focus on the concept, meaning, significance and types of ex-post facto research. Research can be briefly explained as an objective based, specific and the systematic process of exploring new knowledge, skills, behaviour, attitudes and values as well as practices, or for the re-interpretation of existing knowledge, behaviour, skills, attitudes and values. Based on the research goal or problem, the selection of research method by the researcher may vary. When the researcher wants to study the cause of an event which has already occurred as an effect of the cause, then the research conducted is known as ‘ex post facto’ research. For example, if there has been an economical recession in a country and the researcher tries to analyse the ‘cause’ or reason behind such recession (which is the ‘effect’). In this unit you will be learning all about the ex-post facto research, its meaning and characteristic features etc. You will also learn about the differences between ex-post factor and experimental research and how to infer causal relationships. We also will learn about the strengths and weaknesses of this type of research.

2.1 OBJECTIVES

After completing this unit, you will be able to:

- Define ex-post facto research;
- Explain the characteristics of the ex-post facto research;
- Differentiate between experimental and ex-post facto research;
- Elucidate the sequence or steps of the ex-post facto research; and
- Explain the strengths and weaknesses of the ex-post facto research.

2.2 FORMS OF RESEARCH DESIGN

On basis of the occurring events, there can be two designs or forms of research and these are Prospective research design and Retrospective research design. When the researcher tries to find out the future or potential results that is, the effect after treating the independent variable or the cause, then the researcher is actually trying to examine the prospective or the future results. For example, if the researcher wants to examine the effects of excess of smoking, then the subject may be asked to smoke under varied conditions which may result in cancer.

The Retrospective research design on the other hand is one in which the researcher tries to trace the history in order to find out the basic reason behind an event. Here a result has already occurred, and the researcher is trying to find out the causes behind its occurrence by going backwards in history. This kind of results obtained are said to be based on retrospective research design. For example, if the researcher wants to examine the reason behind the occurrence of cancer in a person, then they may try to trace the possible reasons that might have led to cancer. The possibilities may be excess of smoking/ heredity/ diet habits and so on.

Self Assessment Questions

State whether the following statements are True or False

- 1) In a prospective research design, the researcher tries to trace the history of an already occurred event ()
- 2) When the researcher wants to study the cause of an event then the research conducted is known as 'ex post facto' research ()
- 3) When the researcher tries to find out the future or potential results after manipulating the independent variables, then the researcher is actually trying to examine the retrospective aspects of the research. ()

2.3 CONCEPT AND MEANING OF EX-POST FACTO RESEARCH

The ex-post facto research is a kind of research in which the researcher predicts the possible causes behind an effect that has already occurred. For example, if a child is delinquent (that is, one who indulges in criminal activities), then in order to find the basic reason behind such delinquency, the researcher would try to find out the various events that have occurred and the many possibilities that could have contributed to the concerned delinquent behaviour. The expected possibilities may be lack of discipline at school/ family history/ peer effect/ neighbourhood or socialisation.

It is an interesting point to note that, the researcher predicts a cause on the basis of a controlled effect (since no variation can be done on the effect which has already taken place on the basis of the independent variable or the cause).

Thus, an ex-post facto research can be defined as an empirically based investigation which does not involve the researchers' direct control over the

independent variables because they have already led to effects which can no more be manipulated. The conclusions regarding the relationship between the variables are inferred without intervening or varying the independent or dependent variable.

The term ex-post facto according to Landman (1988: 62) is used to refer to an experiment in which a researcher, instead of finding a treatment, examines the effect of a naturally occurring treatment after it has occurred. In other words it is a study that attempts to discover the pre-existing causal conditions between groups.

It should, however, be pointed out that the most serious danger of ex-post facto-research is the conclusion that because two factors go together, one is the cause and the other is the effect.

2.4 CHARACTERISTICS OF EX POST FACTO RESEARCH

Based on the concept of the ex-post factor research, it is also known as ‘causal comparative research’. The ex-post facto research has certain characteristic which distinguishes it from other different types of researches. Some of these characteristics are presented below in the following paragraphs.

The research has a control or a comparison group

As the research is done on basis of the study of the cause which has already led to its effects, it becomes necessary for the researcher to keep a control group, which can be used for comparison with the actual experimental group later on, in order to analyse the cause of an already occurred event.

The behaviour, action, event or the treatment or the independent variable of the research cannot be manipulated or changed

As the ex-post research is a kind of study which tries to predict the causes on the basis of actions that have already occurred, the researcher cannot manipulate or change the already occurred actions or behaviour.

The research focuses on the effects

Since the researcher tries to analyse and predict the reasons behind the occurrence of an event or phenomena, their first attempt is to focus on the event or the phenomena that has already occurred. Only after having a detailed study of the phenomena or the event, the researcher tries to determine the causes behind such an event or phenomena.

The research tries to analyse the ‘how’ and ‘what’ aspect of an event

Since the researcher tries to understand the causal effects behind a phenomena, the research basically focuses on how and what reasons that has led that phenomena to occur.

Explores possible effects and causes

With the help of an ex-post facto research, the researcher tries to analyse the cause and effect phenomena of an event, action or behaviour.

2.5 DIFFERENCES BETWEEN AN EXPERIMENTAL EX-POST FACTO RESEARCH

There is no doubt that both the experimental research and the ex-post facto research try to investigate relationships between the existing variables, the conclusions of both are logically as well as empirically valid and reliable, yet there are certain basic differences between both of them. They can be pointed out as follows:

| | Experimental research | Ex-post facto research |
|--|---|--|
| Control over independent Variable | In an experimental research, the researcher can directly manipulate the independent variable/s (that is, the cause) in order to examine its effect on the dependent variable (that is, the effect). | In an ex-post facto research, the researcher can not directly manipulate the independent variable/s (that is, the cause) as he or she predicts the cause on basis of the dependent variable (that is, the effect). |
| Principle of randomisation | The researcher can use the principle of randomisation in an experimental research on basis of which they can conclude or infer that other things remaining equal/constant/controlled the effect is a result of manipulation of the cause. | The researcher can not use the principle of randomisation in an ex-post facto research as the researcher has no direct control over the cause and so they infer the possibilities of the causes on basis of the existing effect. |
| Manipulation of variables | The researcher can manipulate variables in an experimental research | The researcher can not manipulate variables in an ex-post facto research. |
| Interpretation | It is easier to interpret or infer relationships between the independent and dependent variables as they can manipulate the independent variable and see its effect on dependent variable | It is difficult to interpret or infer relationship between the independent and dependent variables as there can be more than one possibilities or cause for a particular effect. |

Self Assessment Questions

Fill in the blanks:

- 1) The researcher can use the principle of randomisation in an research
- 2) The researcher can not manipulate variables in an research
- 3) The ex-post facto research can be defined as
- 4) The ex-post facto research is a kind of research in which the researcher predicts the possible behind an that has already occurred

2.6 ESSENTIALS/ REQUISITES FOR INFERRING CAUSAL RELATIONSHIPS

In order to infer or conclude the cause and effect relationships, the researcher needs to take care of the following aspects:

Associative variation

In order to infer/ predict or conclude that a particular effect ‘y’ is a result of a cause ‘x’, there should be an association between them. Therefore, the researcher can come to a conclusion only after examining that a variation in ‘x’ yields the effect ‘y’.

Systematic order of events

The events or the process follows a consistent sequence or order. If variable ‘x’ causes ‘y’, then variable ‘x’ must occur before or simultaneously with ‘y’, and not after it.

Absence of other causes

The researcher should analyse each aspect of the causal relationship with full detail and find out the best possible cause/ reason or independent variable that has ultimately led to the effect /action or event to occur. For example, the etiology of cancer can be due to several factors. In an ex-post facto research, the researcher finds out the best possible reason that might have led to the occurrence of that disease within the person or the subject.

2.7 STEPS OF EX-POST FACTO RESEARCH

The process of ex-post facto research is systematic and follows a definite sequence. As mentioned by Isaac and Michael (1971), the following are the steps involved in the expost facto research—

Step 1. Determining the problem

In an ex-post facto research, it is necessary for the researcher to focus on the problem that he or she needs to study. They not only need to find out a problem, they also need to determine, analyse and define the problem which they will be dealing with.

Step 2. Literature Review

Before trying to predict the causal relationships, the researcher needs to study all the related or similar literature and relevant studies, which may help in further analysis, prediction and conclusion of the causal relationship between the variables under study.

Step 3. Formulation of hypothesis

The third step of the ex-post facto research is to propose the possible solutions or alternatives that might have led to the effect. They need to list out the assumptions which will be the basis of the hypothesis and procedure of the research.

Step 4. Designing the approach

Once the problem has been defined and the hypothesis has been postulated, the researcher needs to select the sample which fits the criteria of the study. They also need to select the scale or construct instrument for collecting the required information / data. Once the designing are all finalised, the researcher analyses the relationship between the variables.

Step 5. Validity of the research

The researcher needs to validate the significance of their research. They need to be cautious regarding the extent to which their findings would be valid and significant and helpful in interpreting and drawing inferences from the obtained results.

Step 6. Interpretation of the conclusion

Finally, the researcher needs to analyse, evaluate and interpret the information collected. It is on basis of this step only, the researcher selects the best possible alternative of causes which might have led the effect to occur.

Similarly, Jacobs et al. (1992: 81) also proposed that the following steps are involved in conducting an ex-post facto-research:

1st Step: The first step should be to state the problem.

2nd Step: Following this is the determination of the group to be investigated. Two groups of the population that differ with regard to the variable, should be selected in a proportional manner for the test sample.

3rd step: The next step refers to the process of collection of data. Techniques like questionnaires, interviews, literature search etc. are used to collect the relevant information.

4th Step: The last step is the interpretation of the findings and the results. Based on the conclusions the hypothesis is either accepted or rejected.

It must be remembered that even though the ex-post facto research is a valid method for collecting information regarding an event that had already occurred, this type of research has shortcomings, and that only partial control is possible.

2.8 STRENGTHS AND WEAKNESSES OF EX-POST FACTO RESEARCH

No research can be perfect in itself. All methods have their strengths as well as weaknesses. The same is applicable in the case of ex-post factor research too.

The *strengths* of the ex-post facto research are:

It is considered as a very relevant method in those behavioural researches where the variables can not be manipulated or altered.

The examples of such researches can include many sociological (e.g. delinquency) as well as educational variables (e.g. achievements).

It is more useful than an experimental research as it can be used in analysing a cause on basis of the effect, which is impossible in an experimental research.

It gives a chance to the researcher to analyse on basis of his personal opinion and then come out with the best possible conclusion.

The *weaknesses* as well as the *limitations* of the ex-post facto research are:

As discussed earlier, in an ex-post facto research, the researcher can not manipulate the independent variables.

The researcher can not randomly assign the subjects to different groups.

The researcher may not be able to provide a reasonable explanation for the relationship between the independent and dependent variables under study.

2.9 CONCEPT OF POST HOC FALLACY

While predicting the causal relationships between the variables, the researcher falls prey to the bias called the post hoc fallacy. The concept of post hoc fallacy says that, it is a tendency of human to arrive at conclusions or predictions when two factors go together, one is the cause and the other is the effect. Because delinquency and parenthood go together, we may come to a conclusion that delinquency is the effect and the parenthood is the cause, whereas in reality the peer group to which the child belongs may be the actual reason.

Self Assessment Questions

Fill in the blanks

- 1) The process of ex-post facto research is and follows a definite
- 2) Once the problem has been defined, the is postulated
- 3) Post hoc fallacy is a type of which might dominate the researchers' logical thought process

2.10 LET US SUM UP

It can therefore be concluded that the ex-post facto research holds a very good position in the field of behavioural sciences. It is the only method which is retrospective in nature, that is, with the help of this method one can trace the history in order to analyse the cause/ reason/action from an effect/behaviour/ event that has already occurred. Although it is a very significant method, yet it has certain limitations as well . The researcher can not manipulate the cause in order to see the alterations on its effect. This again marks a question on the validity of the findings of the research. Equally the researcher can not randomly assign the subjects in to groups and has no control over the variables.

Yet, it is one of the very useful methods as it has several implications in the field of applied research as well as behavioural sciences. The investigator can predict the relationship between the variables on basis of an already existing output or effect.

2.11 UNIT END QUESTIONS

- 1) Explain the concept and meaning of ex-post facto research.
- 2) Explain the characteristics of the ex-post facto research.
- 3) Differentiate between the concept of experimental and ex-post facto research.
- 4) Elaborate the sequence or steps of the ex-post facto research.
- 5) Explain the limitations and strengths of an ex-post facto research.

2.12 SUGGESTED READINGS AND REFERENCES

Myers, Anne, & Hansen, Christine. (2006). *Experimental Psychology*. Thomson Wadsworth: Belmont, CA.

Singh A.K. Tests, *Measurements and Research Methods in Behavioral Sciences*, reprint (2002). Bharati Bhavan publishers and distributors

Kerlinger, F.N. *Foundations of Behavioral Research*, fourth reprint (1998). Surjeet publications.

References

Jacobs, CD; Haasbroek, JB & Theron, SW (1992) *Effektiewe Navorsing. Navorsingshandleiding vir tersi?re opleidingsinrigtings. Geesteswetenskaplike komponent*. Pretoria: Universiteit van Pretoria.

Klopper, CH (1990) Referaat gelewer tydens 'n vergadering van lede van die vereniging van SA Bourekenaars: Komitee van hoofde van bourekenaarsdepartemente by universiteite gehou op 29 September 1989. *UP-dosent*, 11(2): 43 - 72.

Landman, WA (1988) *Navorsingsmetodologiese Grondbegrippe*. Pretoria: Serva.

Boyd, H.W. Jr. and Westfall, R. (1972) *Marketing Research: Text and Cases*, Irwin, p. 80.

Dillon, W.R., Madden, T.J. and Firtle, N.H. (1994), *Marketing Research In A Research Environment*, 3rd edition, Irwin, p. 175.

Green, P.E., Tull, D.S. and Albaum, G (1993), *Research For Marketing Decisions*, 5th edition, Prentice-Hall, pp. 105-107.

MacEachen E et al. (2006). Systematic review of the qualitative literature on return to work after injury. *Scandinavian Journal of Work Environment & Health*; 32(4): 257-269.

Howard AF, Balneaves LG, Bottorff JL(2007). Ethnocultural women's experiences of breast cancer: a qualitative meta-study. *Cancer nursing* 30(4): E27-35.

Sim J & Madden S. Illness experience in fibromyalgia syndrome: A metasynthesis of qualitative studies." Social Science & Medicine 2008; 67(1): 57-67.

Blaxter M. Criteria for evaluation of qualitative research. Medical Sociology News 1996; 22: 68-71.

Booth A. Cochrane or cock-eyed? How should we conduct systematic reviews of qualitative research? Qual EBP conference, Coventry university, may 14-16, 2001.

Cohen DJ & Crabtree BF. Evaluative criteria for qualitative research in health care; controversies and recommendations. Annals of Fam. Med 2008; 6 (4): 331- 39.

Dixon-Woods M, Booth A, Sutton AJ. Synthesizing qualitative research: a review of published reports. Qual Res 2007; 7: 375-421.

Dixon-Woods M, Shaw RL, Agarwal S, Smith JA. The problem of appraising qualitative research. QSHC 2004;13: 223-225.

Dixon-Woods M, Booth A, Sutton AJ. Synthesizing qualitative research: a review of published reports. Qualitative Research 2007; 7(3): 375-422.

Websites-

www.wildy.com

www.memsic.com

<http://socrates.acadiau.ca/COURSES/PSYC/McLeod/2023Research/ex-post.htm>

<http://allpsych.com/researchmethods/singlesubject.html>.