

Themantic Education's

# IB Psychology

PREVIEW

eBook



## Quantitative Methods

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## Chapter 6

# Quantitative Methods

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# Introduction

Understanding how and why psychologists use particular methods and techniques when conducting research is at the heart of the IB Psychology course. There may be a lot of new terms and ideas that will be introduced in this chapter, so it's recommended that this material is approached after you have a solid grounding in the subject and knowledge of a range of different studies. If you have been reading the summaries of research methods and ethics at the end of each topic, this chapter will help consolidate your learning and prepare you to apply what you've learned in your own explanations and evaluations of research.

Research in psychology can be roughly categorized into two broad categories: **quantitative** and **qualitative**. Quantitative research deals with numbers and statistical analyses. It enables researchers to draw conclusions about relationships between variables by turning behaviour into measurable quantities. Qualitative research, on the other hand, gathers data that is descriptive and cannot be analyzed using statistical tests. Qualitative methods and related concepts will be addressed in chapter nine.

One of the aims of this course is to help you develop an understanding of the range of possible options psychologists have when designing and carrying out research. It's recommended that all IB Psychology students learn about the quantitative methods in this chapter as understanding these methods will provide you with a range of possible options for addressing exam questions - you may be asked about the use of research methods in any of the topics in the core and the options. This chapter is also designed to help you understand core concepts involved in conducting your own experimental research for your Internal Assessment.

Another aim of this chapter is to encourage you to reflect on the nature of the three different approaches to understanding human behaviour that are integral to the IB Psychology course. These are the biological, cognitive and sociocultural approaches. In order to help encourage reflection on these different approaches, each quantitative method in the first topic is explained in relation to one of these approaches. For example, there's a particular focus on how and why laboratory experiments are used in the cognitive approach, and why correlational studies are used in cross-cultural research in the sociocultural approach. This is not to say that these methods are not used in other areas of study. This has been done to provide you with guidance on how to relate research methods with particular topics.

By the end of this chapter it is hoped you will be able to independently analyze and discuss the use of research methods in relation to different areas of study in psychology. You will also be ready to carry out your own experiment for the Internal Assessment.

## 6.1 Quantitative Methods

### How and why do researchers use quantitative methods in psychology?

**Manipulate:** Control, handle, manage. In experiments, the researchers manipulate the IV by managing it carefully to create different conditions for comparison. It's best to understand this term by looking at examples of IVs in experiments.

**True Experiment:** a quantitative research method that involves the manipulation of an independent variable in order to measure the effects on the dependent variable. The aim of an experiment is to isolate extraneous variables and investigate cause and effect relationships.

#### (a) True Experiments

The term **experimental method** encompasses a range of types of experiments that measure relationships between independent and dependent variables, including natural experiments, quasi-experiments and field experiments (which will be explained later in this topic). In psychology the term experiment has a rather precise definition, whereas in mainstream media the term is often used to describe a study that wasn't an experiment at all.

A **true experiment** (also known as a **laboratory experiment**) is a type of experimental method that involves the **manipulation** of an **independent variable (IV)** and a measurement of the effect of this on a **dependent variable (DV)**. The conditions created by the manipulation of the variable happens in a controlled environment so cause and effect relationships can be investigated. The true experiment is a common method across all areas of psychology. In this section we'll explore how and why it's used in the cognitive approach to understanding behaviour.

An integral part of the cognitive approach is understanding how variables can influence our cognitive processes. In order to measure this, researchers design experiments that involve the manipulation of an IV that is hypothesized to have an effect on a particular cognitive process. Here we can see that one way laboratory experiments are used in the cognitive approach is to have a cognitive process as the dependent variable. For example, in studies related to stereotypes and memory, the independent variable is the information given to the participants prior to processing and interpreting a piece of information. They are then given a recall test and the effects of this information on memory are measured. For example, in Stone et al.'s (2010) experiment the IV was the race of the basketball player in the photo they showed the participants. The DV was how they perceived and remembered the player's performance.

Bransford and Johnson's (1972) experiment is another example of how an independent variable (prior knowledge) is manipulated in order to test the effects on cognition. In their case the dependent variables were comprehension and recall. By manipulating an IV and creating different conditions, the researchers can measure the effects of this and compare the results to draw conclusions about the effects of variables on particular cognitive processes.

Loftus and Palmer's (1974) experiments on the misinformation effect provide further examples of how experimental designs can be used to measure the effects of external variables on cognitive processes. In these experiments the independent variable was the wording of the leading question and the dependent variable is memory. By manipulating the presence of misinformation (e.g. in the form of a leading question) the researchers were able to compare the results of the groups and draw conclusions about the effects of leading questions and misinformation on memory.

While experiments at the cognitive level of analysis might have the cognitive process as the dependent variable, they also include studies that measure the *effect*

of cognition. In this way, the cognitive approach involves experiments that include cognition as the independent variable. Many studies that investigate neuroplasticity fall in this category. In these studies, participants are required to perform different cognitive processes while the effects on physiology (e.g. brain structure and/or function) are measured. For example, Desbordes et al.'s (2012) study involved the manipulation of an independent variable (the type of cognitive practice) and measured the effects this had on a dependent variable (the brain function during processing of emotional stimuli).

This experiment is an interesting example of how the term 'laboratory experiment' might be misleading. While many laboratory experiments do take place in laboratories, others may not. The goal of a true experiment is to investigate cause and effect relationships between the IV and the DV. In order to do this, all other **extraneous variables** must be controlled for as much as possible. Having an experiment take place in a controlled environment (e.g. a laboratory) is just one way that researchers can isolate the independent variable as the only factor influencing the dependent variable. How researchers design experiments to control for extraneous variables will be explained in the next section.

An **extraneous variable** (also called a nuisance variable) is any variable other than the IV that may affect the DV.

<i>Examples of True Experiments in the Approaches</i>			
Approach	Study	Independent Variable	Dependent Variable
Biological	Radke et al. (2012)	Testosterone levels	Brain activity while perceiving faces with different emotion
Cognitive	Cohen (1981)	Information provided about the "women's" job (waitress or librarian)	Memory: the amount of stereotype consistent information remembered
Sociocultural	Asch's Experiments	Group size (is just one variable he manipulated)	Rate of conformity

In summary, key characteristics of a true experiment include:

- Manipulation of the independent variable and measures the effect/s on a dependent variable.
- Extraneous variables are controlled for as much as possible.
- The aim is to investigate cause and effect relationships between variables.

### **Guiding Question:**

How and why are experiments used in the cognitive approach to understanding human behaviour?

### **Abstraction Extension:**

**Limitations:** What do you think are the limitations of conducting research on humans using laboratory experiments? See if you can come up with some examples to support your evaluation. You also may want to try to practice on your own the ability to identify the use of a laboratory experiment and explain why it was used. Another way of extending yourself is to choose another topic and explain how and why laboratory experiments are used in that topic.

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*If you're interested...*

One of the most famous experiments in social psychology is Zimbardo's Stanford Prison Experiment. You can see Zimbardo's Ted Talk called "The Psychology of Evil." As you're watching this video, you may want to be asking yourself, "is this *really* an experiment?"

**(b) Experimental Designs and Controls**

**Participant expectancy effect** is when the participant suspects a particular result in the experiment, and so their behaviour changes, which affects the validity of the data.

See the glossary for definitions of these key terms.

The **order effect** is when the order of the task asked to do in a repeated measures experiment may influence the results.

A **confounding variable** is any variable other than the IV that has influenced the DV.

As you've seen in the previous section, the primary aim of a true experiment is to investigate a cause and effect relationship. The validity of the conclusions from experiments regarding cause and effect relationships can be enhanced by controlling for **extraneous variables**. This can be achieved through the use of **experimental designs** and **controls**. As you will be conducting an experiment for your internal assessment, you need to know and be aware of these concepts when designing an experiment.

To begin with, there are three main experimental designs: **independent samples** (aka **independent groups**), **repeated measures** and **matched pairs**. These terms refer to how participants experience the conditions of the experiment. In an experiment subjects may be **randomly allocated** to the **treatment condition** or the **control condition** (also known as the treatment and control *groups*). When participants experience different conditions, the research design is an **independent samples design**. For example, in Desbordes et al.'s (2012) study on the effects of meditation on the brain there was one treatment group who received mindfulness training, another group who received another form of cognitive training and a control group. These groups are independent and provide different samples of data, hence this experimental design is called independent samples. The researchers randomly allocated the participants to one of the conditions.

By being able to use random allocation to assign participants to the conditions, researchers can control for extraneous variables like the **participant expectancy effect** or **order effects** and increase the likelihood that their results are from the effects of the independent variable, not these other variables. For example, if Loftus and Palmer's participants experienced both conditions (e.g. reading "smashed" on one day and then "hit" on another), they may have guessed the aim of the experiment, which may cause the participant expectancy effect.

Sometimes it might not be desirable to use independent samples, as **participant variability** may confound your results. Participant variability refers to the differences in your participants that could influence the results. For example, in Bandura's Bobo Doll study, he might have ended up with more naturally aggressive children in one of the groups if he used random allocation. This could distort the results. One way of avoiding this is to have large sample sizes to decrease the chances of this happening. Bandura had around 50 kids for four conditions and to control for participant variability he used a **matched pairs** design. This is where participants are matched on some relevant criteria and then they are allocated to different conditions. Bandura had the kids' levels of natural aggressiveness rated (by teachers and daycare supervisors) and then he split them according to their ratings. Other experiments often match participants based on characteristics such as age, gender or occupation.

A third design possibility is called **repeated measures**. This is when all participants experience all conditions of the experiment. For instance, in Passamonti et al.'s (2012) study on the effects of tryptophan depletion (i.e. low serotonin) on the functioning of

the brain they had participants come into the lab on two different days. On one day they drank a placebo and on the other they drank the tryptophan depleting drink. The researchers used **counterbalancing** to control for order effects, which means randomizing in what order the participants drank the treatment/placebo (e.g. half would drink placebo first and then tryptophan depletion drink, and the other half would do it in the opposite order).

They also used a **double-blind** design, which is when neither the researchers nor the participants know who is experiencing which condition of the experiment. A **single-blind** design is when only the participant doesn't know which group they belong to. The use of blind designs can help to control for **researcher bias**. Researchers may unconsciously interpret results differently if they have a particular hypothesis, or they may give off subconscious cues towards the participants about how to act during the experimental procedures that may also affect the results.

To summarize, there are a number of controls that researchers can use when designing experiments. These controls help to reduce the influence of confounding variables such as order effects, participant variability, participant expectancy effects, and researcher bias. The use of blind designs, counterbalancing and research designs (e.g. MP, RM, IS) can help control for extraneous variables and improve the **internal validity** of an experiment.

When you are designing your own experiment for your IA, you will need to apply your understanding of some of these key concepts in your own work. Understanding the experimental design and the use of controls can also enhance your ability to evaluate experiments that you may use in other parts of the course.



*Clinical drug trials need to employ a variety of controls to ensure the validity of the conclusions regarding the effects of new drugs.*

If you're evaluating research in an essay, remember that part of an evaluation includes **strengths**. If you know that a study employed particular controls, you could include these in your evaluation and explain how they help to increase the validity of the experiment's conclusion.

**Internal Validity:** the extent to which the experiment accurately investigates a particular relationship.

### **Guiding Question:**

Why are controls used in experimental research?

### **Abstraction Extension:**

In the following sections you will learn about other research methods. Can you think of any subjects of study where allocation into different conditions is impossible? (Hint: think about studies investigating brain function). You can also extend yourself by revising some key studies you have learned about. Can you identify possible extraneous variables that might influence the results? How could the researchers control for these?

### **If you're interested...**

One of the guys from the Crash Course channel also hosts a video on the SciShow channel called "Human Experimentation: The Good, The Bad, & the Ugly." Do you think Jenner's "experiments" were really "experiments?"

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You may want to be referring back to the terms and definitions in this section when you are conducting your IA.

## (c) Field Experiments

The primary benefit of conducting a laboratory experiment is that extraneous variables can be controlled for and the independent variable can be isolated as the only variable that is operating on the dependent variable, which allows conclusions to be drawn regarding cause-effect relationships. But an obvious critique of the laboratory experiment is that this might not reflect what happens in real life, and psychologists are interested in understanding real life human behaviour, not only what happens in a laboratory.

This is why conducting a **field experiment** is often a valuable type of experiment to conduct because behaviour in real-life environments (the “field”) can be studied. A field experiment is when there is a manipulation of the independent variable by the researcher, but this happens in a naturalistic environment. Field experiments are often used to investigate social influences on behaviour.

A classic example of a field experiment was conducted on a university campus in Florida by Clark and Hatfield (1989). In this study the researchers wanted to investigate the differences in responses to sexual offers by men and women. The researchers had a range of confederates approach students on campus and ask a question along the lines of, ‘would you like to go to bed with me tonight?’ 0% of females agreed to this request by males, whereas around 70% of males agreed to go to bed with an unknown female. This is an example of a field experiment as the independent variable (the gender pairing of the proposer/receiver of the offer) is being manipulated by the researchers as they have chosen the confederates and given them the instructions to approach attractive subjects of the opposite gender. It also happens in a naturalistic environment, which is in a central outdoor area in a large college campus. The dependent variable is the rate of acceptance of the offer.

Perhaps a better example of a field experiment being used in social psychology is Sherif et al.’s classic experiment at the Robber’s Cave Summer Camp. In this experiment we can see the benefits of manipulating the independent variable (e.g. conditions of competition and cooperation) in a real-life setting. The researchers deliberately chose participants that were quite similar in characteristics to control for participant variability. By manipulating the conditions within the summer camp, they were able to test the hypotheses about factors that influence levels of conflict (i.e. competition and cooperation).

**Field Experiment:** an experiment (with the manipulation of an IV and effects on DV measured) conducted in a naturalistic setting.

SL and HL students need to be able to explain the use of research methods when studying particular topics for the core and the options (Paper One and Two).



Field experiments take place in naturalistic settings, like a busy train station.

Studies on bystanderism also use field experiments. A famous study by Piliavin et al. (1969) involved a confederate collapsing on a train. One independent variable in this experiment was the appearance of the confederate. In one condition he held a cane for the purposes of appearing injured. In another condition he held a bottle and smelled of alcohol. The researchers found that people were more likely to help an injured person over a drunk one. Another variable they tested was the race of the person in need: on some trials the confederate was a black man, and in others a white man. This research furthered our understanding of bystanderism in real life situations.



In order to determine the particular research method used, you need to know the definition of the method and methodology of the study in question. You may need to write down on paper the definition and the method and make sure they match. For example, I may think that Cialdini's experiment on re-using hotel towels is a field experiment because this happens in a naturalistic setting (i.e. a real hotel). It meets one of the criteria, but I need to ensure that it's an experiment as well or else I might get caught out. I can make sure it's a field experiment by asking myself, "What was the independent variable and was it manipulated by the researchers?" In this case, the IV was the wording of the card asking people to re-use their towels. There was a clear IV, and it was manipulated by the researchers as they wrote the different cards and randomly assigned them to various rooms.

By following the above thought processes, I can make sure that I have a clear explanation of *how* a field experiment was used in a particular study. I now need to make sure that I can clearly explain *why* it was used in relation to a topic. Cialdini's field experiment is relevant to "Social Responsibility" (Human Relationships) and "The individual and the group" (Sociocultural level of analysis). The explanation of why a particular method was used needs to include the characteristics of the method and why they were useful in relation to the particular topic. In the case of field experiments, this involves focusing on why a naturalistic setting for the experiment was valuable, and why it was beneficial to manipulate the independent variable. In both cases, my explanation would focus on the benefits of being able to manipulate the level of perceived social influence. By comparing the effects of differing levels of social influence the researchers can draw conclusions about the effects this might have on behaviour. By conducting this experiment in a naturalistic setting, it allows stronger evidence for the applicability of using such compliance techniques to encourage people to act in a socially responsible manner in real life situations.

If I was applying this to "Social Responsibility," I would focus on this aspect of the research in my explanation. For instance, I might conclude that Cialdini's field experiment helped support the argument that social influence can be used in real life situations to promote prosocial behaviour and to encourage people to act in a socially responsible manner.

On the other hand, when applying it to "The individual and the group," I would focus on this concept in my explanation and how the field experiment relates to this idea. I might say, for instance, that the use of a field experiment design in Cialdini's study enables the researchers to show that individual behaviour can be influenced by the group (e.g. social influence).

While both explanations would be very similar, the application to the particular question and topic would be slightly tweaked. Application is an essential part of an excellent explanation because it shows your understanding. By practicing your ability to apply studies to demonstrate a range of concepts you will develop a deeper understanding of core concepts in psychology, like how and why certain research methods are valuable in particular areas of study.

To summarize, the key characteristics of a field experiment are:

- There is an independent variable and a dependent variable.
- The IV and DV have been manipulated in a naturalistic setting.
- Because of the environment it's harder to control for extraneous variables.

Be careful when identifying research methods and examples of studies: make sure your example fits the characteristics of the method you are explaining.

**Guiding Question:**

How and why are field experiments used to study social influences on human cognition and behaviour?

**Abstraction Extension:**

As with the previous section, there are two key ways that you need to try to extend your thinking when studying research methods. The first is to think of potential limitations of using the particular method in that field of study. Can you think of (and explain) any limitations in using field experiments to study social influences on behaviour? Can you think of any other field experiments you are familiar with and apply an explanation of how and why this method was used in that particular context?

**If you're interested...**

Field experiments tend to be interesting in their design as it's easy to imagine what we might do if we were in a similar situation. Aron and Dutton's (1974) "shaky bridge study" is a classic in the field of attribution and arousal. You can find a summary of this study on our blog. Have a read and see if you think this is an example of a "field experiment."

**(d) Quasi-Experiments**

In a true experiment researchers can randomly allocate participants to different conditions, which may help to control extraneous variables and help to establish cause and effect relationships. Being able to randomly allocate participants can help control for participant variability and increases the chances of the measures of the dependent variable being a result of the manipulation of the independent variable. The ability to randomly assign participants to a condition of the experiment is one of the defining characteristics of a true experiment. While the true experiment is valuable in psychological research, it does have some limitations.

When studying human behaviour, there are often times when a variable might be influencing behaviour but participants cannot be randomly allocated to a condition. Sometimes there is clearly a situation when a particular variable is influencing behaviour and comparisons can be made. This is where a **quasi-experiment** is used. A quasi-experiment is when a study meets some of the criteria of a true experiment, but not all of the criteria can be met. For example, there might be an investigation into the effects of one variable on another, but the participants cannot be randomly allocated to a particular condition.

Numerous studies that investigate neuroplasticity by measuring and comparing the effects of practice on brain structure use a quasi-experimental design. These studies are investigating the effects of a particular treatment or experience on the brain, but participants cannot always be randomly allocated to a particular condition in the study. For example, in Lazar et al.'s 2005 study mentioned in the Criminology chapter, the effects of mindfulness were investigated. This study had a treatment group that went through a mindfulness training programme. The effects this mindfulness had on changes in grey matter were compared to a control group. In this particular study, the mindfulness participants were enrolled in a programme while the control group were

A **quasi-experiment** might investigate relationships between IVs and DVs, but other conditions of a true experiment cannot be met (e.g. participants cannot be randomly allocated to a treatment or control group.)

on a wait list. In this particular case, it was not the researchers who were able to randomly assign participants to either condition as they already existed, yet they were clearly investigating the effects of an IV (mindfulness training) on a DV (grey matter in the brain). This is a good example of a study that follows the strict definition of a quasi-experiment.

Another quasi-experiment that investigated the effects of experience on brain development was carried out by Elizabeth Maguire (Maguire, 2006). This study compared the brain structures of London taxi drivers and bus drivers. In order to become a taxi driver you have to train for years and memorize all the street maps of London. An earlier study by Maguire had found that there were significant differences in the structure of the hippocampus when taxi drivers were compared with a control group. However, there were multiple possible explanations for this difference, so Maguire conducted this follow-up study to control for those variables. By comparing taxi and bus drivers, variables like driving experience, job experiences, age and education could be controlled for. The experience of training to become a taxi driver and doing this for a job is the variable that Maguire wanted to investigate the effects of. While other variables could be controlled and a cause-effect relationship is being studied, the participants cannot be randomly allocated to either condition. For these reasons this study could be considered a quasi-experiment.

From these and other examples we can see the value of quasi-experiments in the biological approach. It enables researchers to investigate relationships between variables, even when participants cannot be randomly allocated to conditions in the experiment.

In summary, key characteristics of quasi-experiment include:

- The presence of an IV and a DV (there is typically some sort of “treatment” being studied).
- The IV is not manipulated by researchers (i.e. it’s pre-existing) so extraneous variables cannot always be controlled.
- Participants cannot be randomly allocated to a treatment or control condition.

### Guiding Question:

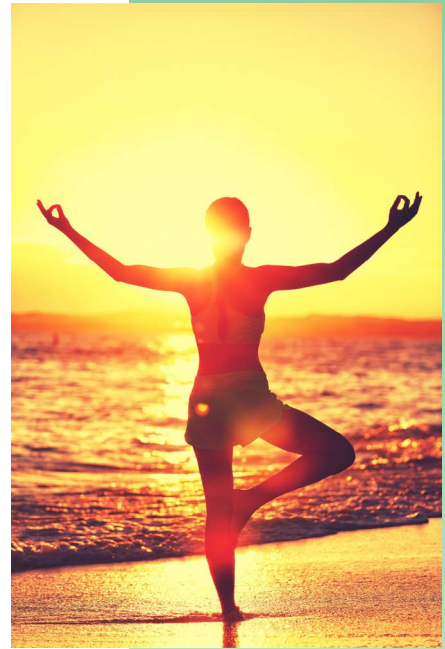
How and why are quasi-experiments used in the biological approach to understand human behaviour?

### Abstraction Extension:

**Applications:** When a study investigates the relationship between biology and cognition, it’s possible to apply this study to multiple possible questions from different topics. How could you use the same study to explain how and why a quasi-experimental design is used in two different topics? E.g. one from biological approach and one from the cognitive?

### If you’re interested...

Research methodologies is not every student’s favourite aspect of the IB Psychology course. However, if this area of the subject does interest you I highly recommend Hugh Coolican’s informative book, *Research Methods and Statistics in Psychology*.



*A quasi-experiment still involves some type of “treatment” or experimental condition (e.g. yoga therapy) but one or more characteristics of a true experiment can’t be met (e.g. random allocation to a condition).*

Identifying grey areas in distinguishing methods and studies would make for valuable “critical thinking” in essays.

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## (e) Natural Experiments

As we saw in the previous lesson, sometimes there are interesting variables that have occurred naturally that may be of interest to the researchers. The term quasi-experiment was created to explain an experimental study that does not meet all the criteria of a “true” experiment, but there is an effect of some kind of treatment. Similar to the quasi-experiment is the **natural experiment**.

A natural experiment is when a researcher investigates the effects of an independent variable that is occurring naturally. The independent variable in a natural experiment is usually an environmental factor. For example, Becker et al. (2002) conducted a natural experiment in Fiji after the introduction of television. In 1995 TV was introduced for the first time on one of Fiji’s islands. The researchers wanted to investigate the effects this might have on eating disorders and attitudes in young women on the island. In this case, the naturally occurring independent variable (the introduction of TV) was of interest to the researchers as they could investigate the effect this had on eating behaviours and attitudes of the Fijian girls. This research can help develop our understanding of how media influences may play a role in eating disorders.

Because natural experiments often include the introduction of a variable in the environment, they are often used to study the effects of social influences on behaviour. The introduction of TV (and other media) is a social variable influencing behaviour. The effects of media on behaviour is a common variable in natural experiments and can be compared with Bandura’s experimental research from the 1960s. The benefits of laboratory experiments in this area of study is that extraneous variables can be controlled and the study is quite straightforward. But could these results be applied to naturalistic settings?

An example of a natural experiment investigating a causal relationship between media and violence was carried out by Dahl and DellaVigna in 2009. In their natural experiment they measured the effects of the release of violent blockbuster movies on acts of violence. They found that on the days that a violent movie is released, violent crime is actually reduced between 6pm and midnight (by a small margin – just over 1%) and further reduced between midnight and 6am. There explanation for this is

that people who are prone to committing acts of violence are in the movie theatres and are preoccupied with this, so they are not in a place to commit an act of violence. Being in a movie theatre also reduces alcohol consumption, which could further reduce violent acts. By studying the naturally occurring variable of the release of blockbuster movies, these researchers were able to investigate relationships between media and violence.

Cialdini et al.’s 1976 study on the effects of the football team’s success is another example of a natural experiment. In this case the independent variable

When identifying a study as a **natural experiment** be sure you identify clearly the independent variable that is naturally occurring.



The introduction of TV in Fiji is an example of a naturally occurring independent variable that researchers wanted to investigate.

was whether or not the college football team won. This is a variable that is naturally occurring, but still might influence behaviour (wearing the clothing with the name of the college). This variable's influence on behaviours related to social identity could not be manipulated in a laboratory, so the researchers make the most of naturally occurring environmental variables.

It's important to note that the difference between a quasi- and natural experiment is very slight and it's not always possible to make a black-and-white distinction. In fact, natural experiments are considered a type of quasi-experiment. The definition of quasi-experiment has also become much broader than its original definition. To make matters even more confusing, field experiments might also be considered a quasi-experiment. It's very easy to get confused and frustrated at trying to categorize studies and label them as using a particular method. If you are unsure if a study is a natural experiment or a quasi-experiment, you can identify it as a quasi-experiment (since a natural experiment is a type of quasi-experiment). When identifying the use of a quasi-experiment you can keep it simple and see if the study:

- Is investigating a causal relationship between an IV and a DV, and...
- Lacks one or more characteristics of a true experiment (e.g. participants cannot be randomly allocated to conditions).

If the study meets these criteria, it can be accurately labelled a quasi-experiment. But don't get too hung up on categorization - the key concept for you to understand about research methods is that there are multiple possible ways for researchers to study human behaviour, and each method has its own strengths and limitations.

In summary, key characteristics of a natural experiment include:

- The presence of an IV and a DV.
- The IV is a naturally occurring variable in the environment.
- The IV is not manipulated by researchers (i.e. it's naturally occurring) so extraneous variables cannot always be controlled.

When explaining natural experiments in relation to a particular topic make sure your explanation is clearly focused on *why* the study of a naturally occurring variable is useful in that particular context.

### **Guiding Question:**

How and why are natural experiments used in the sociocultural approach to understand human behaviour?

### **Abstraction Extension:**

**Areas of Uncertainty:** Categorizing studies and labelling them as using one method or another can be a difficult and often an impossible task. Can you think of studies that could fit the description of a field, natural and quasi experiment?

### **If you're interested...**

An interesting natural experiment was carried out on the small island of St. Helena. TV was introduced in the 1990s and the researchers wanted to see if this would have an effect on the level of violence displayed by the school kids on the island. You can read more about this study on our blog.

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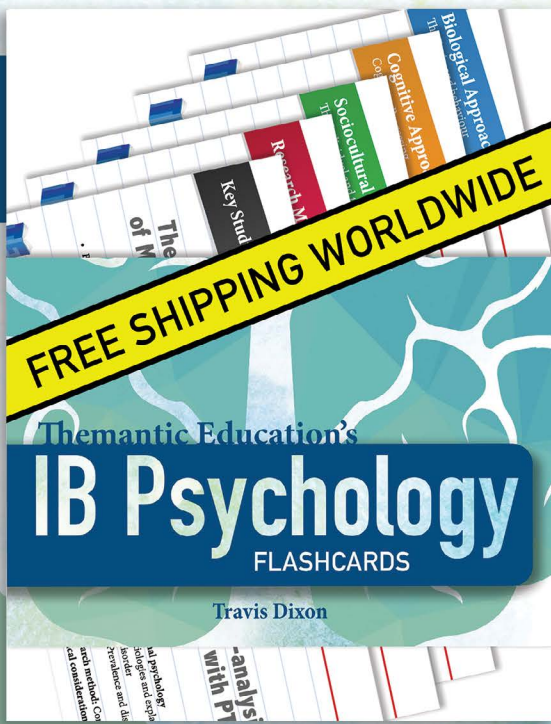
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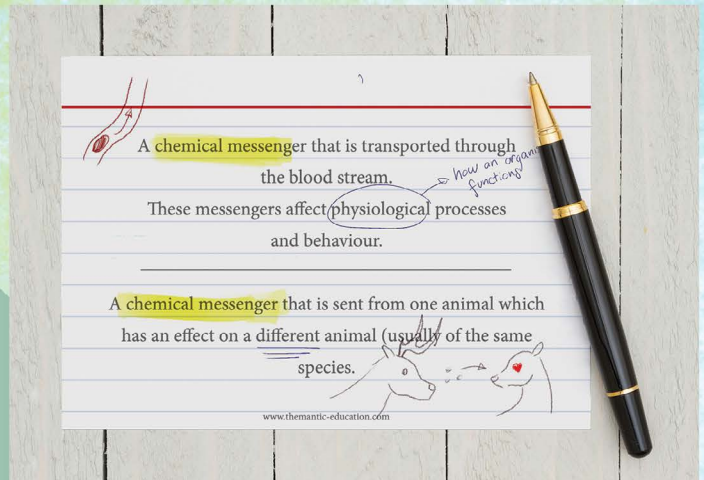
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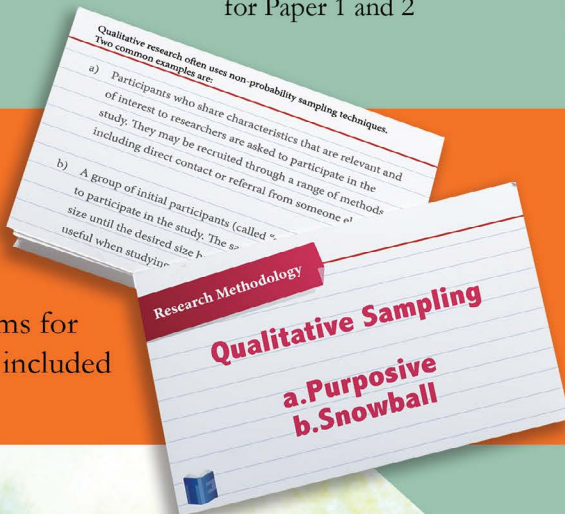


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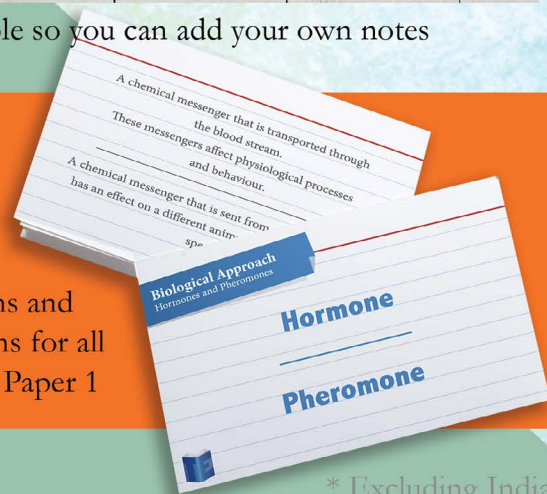


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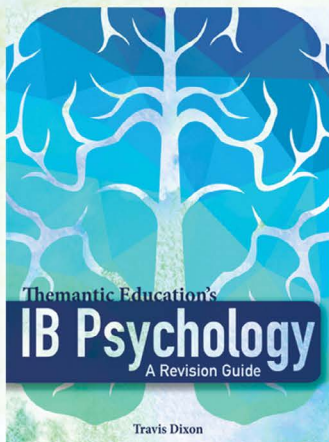
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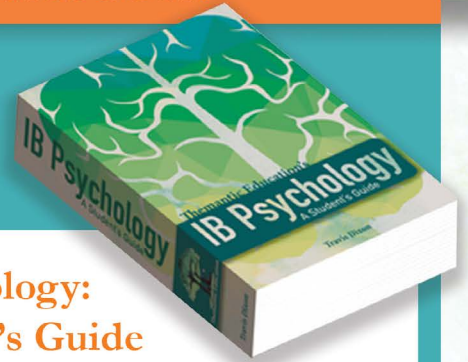
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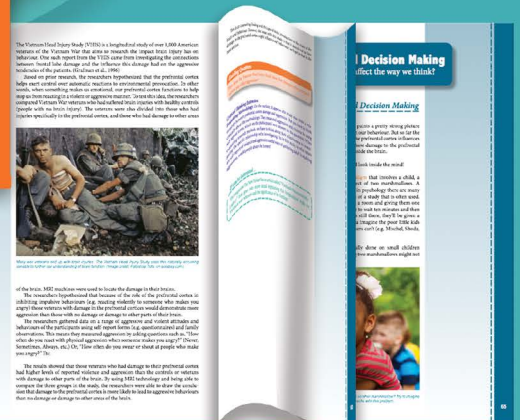
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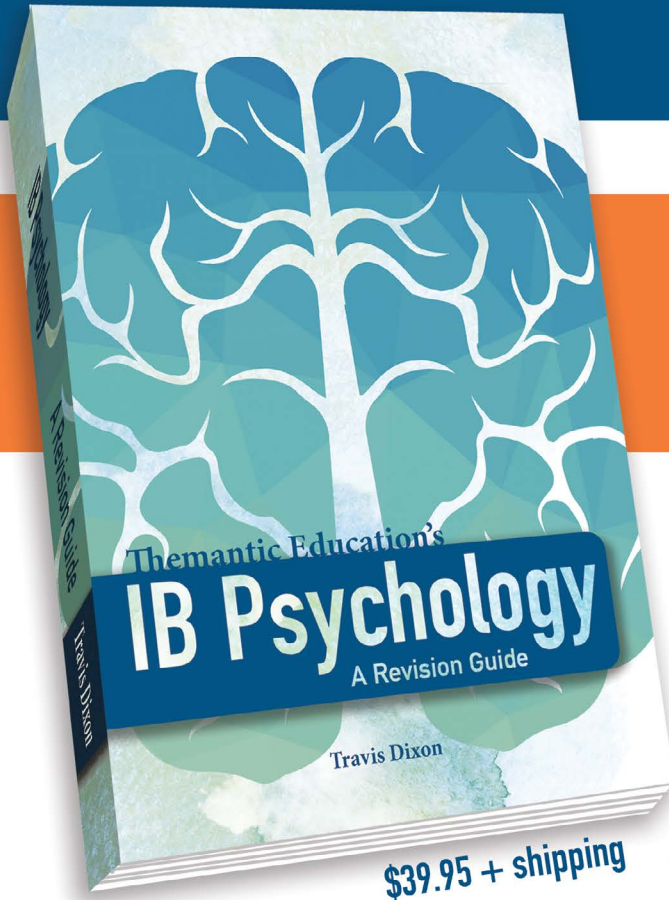
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