

Bias

In a general sense, bias is a systematic deviation from the truth. Being systematic is what makes bias different from a mistake or a random error. If you measure the weight of an object using scales 10 times in a row, you will likely get 10 slightly different results each time. Some results will be above the object's true weight, some will be below. This is random error. However, if your scales are biased, they will systematically deviate in the same direction, i.e., they will underestimate or overestimate the true weight of the object. Every bias is caused by something—in other words, bias has a source. Knowing sources of bias is important if we want to eliminate it or at least take it into account.

In psychology, bias can manifest in a variety of ways:

1. Bias may be found in research. Examples include researcher bias, participant bias, sampling bias, publication bias, confirmation bias, gender bias, cultural bias, and dominant respondent bias. You will find these and other examples discussed in this book—introduced in Chapter 1 and applied to the analysis of specific research studies throughout the other chapters. Not all of them have the helpful word “bias” in the name. Order effects, experimental mortality, social desirability, and demand characteristics are all examples of sources of bias in a research study. The flipside of bias in research is its credibility: research is credible if it is free of bias. Therefore, every time you are analysing a research study through the lens of such ideas as credibility, trustworthiness, validity, reflexivity, and reliability, your analysis is relevant to the concept of bias.
2. Bias may occur in the way we interpret research findings. This is related to the researcher's beliefs or theoretical orientations. The same research findings may be interpreted differently depending on the theoretical perspective. Examples of this sort of bias include biological and environmental reductionism—theoretical positions that inflate the importance of some variables in human behaviour and downplay the importance of others.
3. Bias may occur not only in our study of behaviour, but in behaviour itself. Human behaviour may be biased. In this course, you will study such phenomena as cognitive biases, stereotypes, discrimination—these and others provide examples of how human cognition and behaviour can deviate from objectivity and rationality. A related example is bias in diagnosing mental disorders.

These are all examples of how the concept of bias links to different specific content that you will study in this course. There could be other links. All are acceptable as long as they are relevant and justified.

Causality

Causality is the relationship between variables when one variable is the cause of another.

In science, it is very important for us to understand the causes of things because it is only then that we can know their true nature. Science has four functions: to describe, to explain, to predict, and to control. We describe when we carefully document the behaviour of the observed reality (i.e., in astronomy when we document the orbits of planets). We explain when we can answer the question “why?” Planetary movements were explained when the laws of gravity and laws of classical mechanics were discovered. We understood that planets move the way they do *because* they are driven by gravity and inertia.

After we have explained, we can now predict. For example, we can tell exactly when and where the next solar eclipse will take place. If we can predict, we can also control. For example, we can now create explosions on an asteroid approaching Earth to deflect it from a collision.

When psychology was emerging as a science, researchers approached it with a similar desire to study human behaviour in a way that uncovers its causes and therefore gives us the ability to predict and control. Over the course of time, it became obvious that the study of human behaviour cannot be approached in the same way as the study of an asteroid. However, the desire to uncover causal relationships wherever possible remained.

The problem with human behaviour is that it is complex and multi-determined (that is, caused by an interaction of multiple variables). Untangling these changing and interacting causal relationships is not an easy task.

This course is organized around a study of three factors that can influence human behaviour: biological, cognitive, and sociocultural. To better understand the complex causality of these factors, researchers try to isolate each of them and study their effects one by one. This links to the method of experiment—the only scientific method that allows us to make cause–effect inferences. Issues of validity, extraneous variables, and experimental controls become relevant to this discussion. Does the experiment really demonstrate that A influences B? As you can see, this aspect of causality overlaps with the concept of bias: we are more confident that an experiment allows cause–effect inferences if we know that we have controlled potential biases.

Apart from judging whether or not a study is designed in a way that allows us to make cause–effect inferences, the concept of causality is also central to interpreting findings. As already mentioned, the picture of causality in human behaviour is usually complex, and researchers try to gradually reconstruct it. For example:

- Is there bidirectional ambiguity in results?
- If we are confident that there is a cause–effect relationship, what kind of causality is it?

- Is it a direct influence or mediated by some other variables?
- Is it short term or long term?
- Are there side effects?
- Is it "domino causality" where there is a chain of events leading to the final outcome?

Finally, there is the issue of complexity and interaction. Do the factors influencing behaviour interact with each other and if they do, then how?

Perspective

A perspective is a way of looking at things. One and the same object or phenomenon can be looked at from different perspectives, and this would reveal different sides of it. To fully understand an object or a phenomenon, it is usually necessary to look at it from various perspectives and then combine them into a holistic picture of reality.

The IB Psychology course is organized around the idea that human behaviour can be studied using three broad approaches: biological, cognitive, and sociocultural. These three approaches represent the three main perspectives in psychology.

The triad "biological–cognitive–sociocultural" is very prominent in IB Psychology, but it is not the only link to the concept of perspective.

Various psychological theories or psychological models that provide different explanations of the same behaviour can also be considered perspectives.

Even on a more specific level, alternative explanations and interpretations of the same research finding could also be linked to the concept of perspective. It is a very common situation in psychology that findings of a research study may be interpreted in light of different theoretical perspectives, providing different interpretations of the result obtained in the study, and arriving at different conclusions.

Measurement

In IB Psychology, the concept of measurement refers to using research to obtain data about the behaviour of interest. Fundamentally, measurement is how we know something about behaviour. The quality of measurement determines the depth and objectivity of our knowledge.

Note: the word "measurement" has a connotation of something quantitative, expressing some observation in the form of numbers. Measurement as a concept in IB Psychology is broader than that and can equally apply to qualitative research and data that is not numerical.

Human behaviour is difficult to observe and objectively measure (e.g., think about how you could observe and measure the emotion of embarrassment). Selecting an appropriate method of measurement is a crucial task and an important challenge for a researcher.

Broadly speaking, the concept of measurement would be relevant to almost any discussion related to research methods. It will be explicitly or implicitly present in any topic because everything we know in psychology, we know because we studied it using some research methods, obtaining data and analysing it.

Some more specific examples of content that is directly relevant to the concept of measurement include the following:

- Selecting an appropriate research method to study a specific behaviour.
- Data collection tools and how they influence the credibility of the study as well as our conclusions.
- Evaluation of the quality of a research study that was used to obtain knowledge about a certain behaviour.
- Measurement in qualitative research: the role of reflexivity, ways to increase trustworthiness of findings.
- Brain imaging techniques, their strengths and limitations, and their usefulness in the context of research of a particular behaviour.
- Issues related to interpretation of research data, for example, effect size and statistical significance.

Change

Speaking very broadly, change means a process through which something becomes different. A great variety of specific examples may be related to this broad definition.

In this psychology course, there are two examples of change that you will come across most frequently:

- Development that occurs naturally: for example, the cognitive development of a child, the development of symptoms of depression in response to stress, or the development of romantic relationships over time.
- Change that is the result of a purposeful intervention: for example, treatment of a mental disorder, using technology to improve a cognitive process, or using communication strategies to repair a friendship.

Although less frequently, you may also come across other examples that may be related to the concept of change, such as prevalence rates of health problems that change not only over time, but from one population to another.

Keeping all this in mind, some of the ideas that may be relevant to the concept of change in the first sense (as development that occurs naturally) are: cognitive and social development, maturation, brain development, enculturation, acculturation, social learning, environmental influences on cognitive processes, and many others.

Some of the ideas that may be relevant to the concept of change in the second sense (as the result of a purposeful intervention) are: treatment for mental disorders, prevention of health problems, prevalence of health problems, compliance techniques, strategies for improving relationships, improving a cognitive process, operant conditioning, and so on.

Exam tip

Importantly, although some topics in IB Psychology naturally lend themselves to an exploration through the lens of a particular concept (e.g., the concept of change), any topic can be analysed through the lens of any concept. For example, the topic "Biological treatment for one disorder" is obviously related to change because it deals with psychiatric medication which we use to change symptoms of mental disorders. On the other hand, the topic "Biological explanations of mental disorders" is more obviously related to the concepts of perspective and causality. However, it does not mean that you cannot discuss biological explanations of mental disorders through the angle of change. In fact, as we mentioned earlier, explaining something (causality) gives us the opportunity to predict it and control it (change). Ultimately, all concepts are interconnected, and all topics are interconnected through them.

Responsibility

Psychologists conduct research with living beings. They also influence decisions and policies that affect the lives of people in various ways. This places psychologists in a position of power, which implies that they bear responsibility for both the process and consequences of research.

The concept of responsibility in IB Psychology mostly links to ethical considerations: in conducting a research study, in reporting the results, and in ensuring that research findings are ethically implemented.

Like many other concepts, ideas related to responsibility can be found in any topic or content that you will study. Psychological knowledge is based on research, and where there is research, there are ethical considerations. There is a lot of overlap between topics because ethical principles are universal and apply to all research equally. For example, the ethics of conducting a study of stereotypes will not be fundamentally different from the ethics of investigating the influence of chemical messengers on human behaviour.

Having said that, some ethical considerations are more prominent or relevant in some areas of study compared to others. A study of stereotypes will most probably touch upon some sensitive topics, and published results may affect public opinion or public policies in certain ways. So one needs to think carefully about the possible discomfort created in participants by the research procedure, and also the possible adverse social consequences of publishing certain results. A study of chemical messengers will likely involve some kind of ingestion (for example, taking a medicine that affects the level of neurotransmitters in the brain). Therefore, one needs to carefully think about side effects and possible physical harm, balancing this against potential benefits that can be created by the study.

Some examples that are relevant to the concept of responsibility in this course include, but are not limited to:

- Ethical considerations involved in conducting a specific research study (e.g., the use of deception, informed consent, protection from harm, right to withdraw, or debriefing).
- Ethical considerations involved in conducting research with animals.
- Decision-making of ethics committees that consider research proposals and decide if they can be approved.
- Ethical considerations involved in reporting the results of a study, both to participants themselves and to a wider community (e.g., through publication).
- Ethical considerations regulating how psychologists handle data: for example, giving access to data for independent researchers to verify the results, removing identifying information from datasets to protect the identity of participants, and so on.
- Ethical considerations involved in disseminating and applying the results of research, publishing research findings about socially sensitive issues.
- Ethical considerations involved in social advocacy. For example, ensuring that the public understands the level of uncertainty associated with research results, making sure that research results are not oversimplified in public perception and not misinterpreted, protecting minority groups from stigma, advocating for change in social policies based on results of research.