

Scientific Methods: How Psychologists Do Research

Overview

In Unit 1 psychology was defined as the scientific study and explanation of human behaviour, mental processes and consciousness. In Unit 2 three key aspects of the scientific process will be discussed. First, the choice of research methods that are available to psychologists; second, the ethical issues that should be considered when psychologists undertake research with human participants; and third, the need for persons to adhere to copyright procedures when reporting the studies undertaken by other scientists. These issues will be outlined in two sessions. An attendant issue is reporting evidence from the scientific literature, including published articles. You will be trained in how to critique a scientific paper.

In Session 2.2 you will be provided with the necessary readings to supplement the information that is available in your course text, Boyd & Bee (2012). After reading the recommended articles you will discover that psychological research methods are linked to the psychological approaches documented in Unit 1. You would recall that the six mainstream psychological theories are psycho-analytic, behavioural, cognitive, biological, humanistic and social psychological. Unit 1, Session 1.2, Activity 1.3 presented you with a survey conducted using a sample of youths aged 15-17 years in St. Vincent and the Grenadines. The goal of the survey was to identify the concerns of young people and to document their proposed solutions for addressing their concerns. The survey method is an example of how research can be undertaken to obtain policy-relevant data.

Unit 2 continues to utilize constructivist theory, cognitive theory, behavioural theory and a work-base approach to course delivery and learning styles. Prescribed hyperlinks and recommended e-resources readings are listed at the beginning of Unit 2 and your success in this course is linked to your willingness to embark upon your own active *UWUinc* searches to clarify topics that you do not fully understand, or to critically evaluate the points stated in the unit discussions. You will notice that some activities required readings are that are repeated across various units and this is a deliberate teaching strategy. This strategy allows you time to digest the reading material, to reflect on the salient issues in the readings beyond a 1 week period, and to apply the new arguments and information presented in subsequent units to your earlier reading of the material. This teaching strategy will help you to develop your critically thinking, analytical and memorial skills. Concepts written in bold font are defined in the Glossary of Terms which appears at the end of the unit. Remember to use the link to the on-line dictionary of psychology to look up words and concepts that you do not know.

There are several activities and MyLab learning tasks to be completed in this Unit. The due dates are listed in the unit. **In most cases you will work as a group in tutorials to order to complete unit activities so that you will not be unnecessarily burdened by having to complete all the unit activities by yourself. Your presentation will either be in tutorials or in a designated BBC session. In this way group work offers a way to save time in assignment preparations while presenting you with an interactive environment in which to learn.**

Essential readings will be placed in the Unit 2 folder in the Learning Exchange. You are encouraged to read extensively to improve your understanding of the unit material by accessing the extensive collection in the UWI Open Campus Library. When you find interesting, relevant articles please recommend them to your course colleagues with a posting in the forum discussion of the Learning Exchange along with a brief note about why this reference is useful to the understanding of Unit 2.

The skills set and knowledge-based competencies for Unit 2 are listed below.

Competencies/Skills lined to Youth Development Work

1. YDWCYP0263: Enable young people to become active and responsible citizens.
2. YDWCYP0283: Build partnerships and network with key stakeholders.
3. YDWCYP0293: Contribute to the development and implementation of a national youth policy.
4. YDWCYP0413: Undertake research activities to support programme development.

Key Concepts in Unit 2: research design, method, sample, ethics, simulations, cross-sectional design of studies, longitudinal design of studies, sequential design of studies, copyright issues, plagiarism, random sample, stratified sample.

Structure of the Unit

This Unit is divided into two sessions as follows:

Session 2.1: Research Designs and Methods in the Scientific Process

- Research Designs (cross sectional, longitudinal, sequential)
- Qualitative and quantitative research methods
- Psychological Methods (e.g. experimental, case studies, surveys, simulations and role playing, naturalistic and laboratory observations, correlational studies).
- Sampling issues to be considered when selecting subjects for a study (random and stratified sampling)

Session 2.2: Ethics in Human Research and how to critique a scientific article

- What are ethics? Why are they important to psychological research?
- American Psychology Association (APA) guidelines on ethics and writing the scientific paper.
- Copyrights, 'copywrongs' and plagiarism.
- Introduction to Turnitin.
- Checklist for critiquing a scientific paper

Unit 2 Learning Objectives

By the end of this unit learners would be able to:

1. Build on the concepts and psychological theories presented in Unit 1 and to link the methods explained in Unit 2 to these theories;
2. Explain the research process for deriving scientific facts about human behaviour;
3. Outline the merits and demerits of various designs and research methods documented in this unit;
4. Distinguish between qualitative and quantitative research methods;
5. Develop a working idea of sampling issues as they relate to the scientific method;
6. Recognize the importance of ethical considerations to the scientific inquiry;
7. Apply your knowledge of research ethics to your youth development work;
8. Outline the procedures to be followed when critiquing a scientific article;
9. Apply your knowledge of Unit 2 to practical issues involving youth development work;
10. Summarize the main points of the essential readings identified in Unit 2.



Readings and E-resources

Office of Behavioural and Social Sciences Research (n.d.). E-source Behavioural and Social Sciences. Retrieved from <http://www.esourceresearch.org/Default.aspx?TabId=615>

'Experiment Ethics in Psychological Research' on mydevelopmentlab.com (Boyd & Bee, 2012, p. 17)

Small Island Voice St. Vincent and the Grenadines. (n.d.). Youth concerns in Bequia, St. Vincent and the Grenadines. *Small Island Voice St. Vincent and the Grenadines*, Retrieved from <http://www.unesco.org/csi/smis/siv/Caribbean/svg-youth.htm>

Video 'Before informed consent' by Robert Guthrie on mydevelopmentlab.com (Boyd & Bee, 2012, p. 18)

Session 2.1

The Role of Sampling and Research Methods in the Scientific Process

Introduction

In this session three research designs (**cross-sectional design, longitudinal design and sequential design**) available to behavioural scientists and psychologists will be presented and critically evaluated. Before critically examining the various research methods that psychologists employ to test their theories or to elaborate on their concepts, it is important to remember that research methods fall into two categories: quantitative and qualitative. An outline of the characteristics, strengths and limitations of selected psychological methods such as naturalistic and laboratory observation, experiments, simulation or role playing techniques, case studies, surveys, and correlation studies will be provided. As you read this unit and explore other reference material you will discover that psychological research methods are shared by behavioural and social scientists and thus can easily be applied to youth development work. Moreover, there is neither a right nor a wrong methodological approach for studying human behaviour, the choice of research method is dependent upon the rationale for undertaking the study, the objectives of the study, the time frame, and most importantly the budget allocated to the study. The six psychological approaches identified in Unit 1 have in their formative stages of development been linked to specific methods. For instance, Freud's psychoanalytic approach was based on case studies and interviews with patients who recounted their childhood experiences. Behaviorism or behavioural theories have been applied used to assess the effects of rewards and reinforcement on the re-shaping of behaviour. This theoretical approach suggests that the application of controls and the evaluation of these controls and manipulations to outcomes are best evaluated via experimental than non-experimental methods. As you read the unit material you can formulate your own ideas of which methods are linked to each of the six approaches documented in Unit 1. In this session consideration is given to types of samples; for example, random sample and stratified sample. Sampling is discussed because some of the competencies associated with Youth Development Work require knowledge of sampling.

The coverage area for this unit will include topics that will help you to develop your competencies in the areas identified in YDWCYP0263 '**Enable young people to become active and responsible citizens**'; YDWCYP0293 '**Contribute to the development and implementation of a national youth policy**'; YDWCYP0283 '**Build partnerships and network with key stakeholders**'; and YDWCYP0413 '**Undertake research activities to support programme development**'. For example, YDWCYP0283 requires you to conduct basic research and you would need to know the range of research methods and design

options that are available to you. Similarly, YDWCYP0293 suggests that when research tools are being considered they must be appropriate to evaluate the policies and the objectives of the study. Research and consultation should consider **random** selection and **stratified** selection in sampling as well as qualitative and quantitative research methods. YDWCYP0413 encourages you to ensure that research activities are conducted in ways that are consistent with the research design and that data collection is also consistent with the research design. Other PSYC 1000 competencies require you to be able to conduct a **gap analysis** and to know about focus groups and interviews. These issues will become clearer as we proceed through Unit 2 but as an initial example you would recall reading the article titled '*Youth concerns in Bequia, St. Vincent and the Grenadines*' in Unit 1. The goal of this study was to identify the critical needs of young people and the researchers chose to use the survey method as well as to examine the views of youths 15-17 years. You are encouraged to refresh your memory by re-reading this article because it contains relevant formation on research methods, data collection and policy making that will be relevant for Unit 2 and your career as a youth development worker or social worker.

Now that you have completed unit 1 you have the experience of accessing the e-resources identified in your readings and you should realize that a balanced approach is used to critically discuss the information presented to you. In other words, the pros and cons or the merits and demerits of each theory or approach were identified in Unit 1 and the same strategy would be utilized in the presentation of the arguments on designs, methods and sampling. Regional material will be presented for your reflection, discussions and activity tasks. By the end of this session you would be on the pathway for becoming a professional youth development worker. The quality of your postings in the discussion forum of the Learning Exchange will reflect the contribution that you can make as a social scientist to the Caribbean region.

Session 2.1 Objectives

At the end of this session learners would be able to:

1. Describe and critically evaluate the main designs available identified in this unit;
2. Distinguish between quantitative and qualitative research methods;
3. Identify research methods that are available to psychologists for investigating human behaviour;
4. Apply the discussion of research designs and methods to the investigation of specific psycho-social problems in your country;
5. Develop your ideas about how youth policy research can be undertaken using the research methods and designs explained in this unit;
6. Recognize that there is no right or wrong methodological approach for studying human behaviour. The choice of method is related to the nature of the study and the focus of the inquiry.

Research Designs, Methods and Sampling

Boyd and Bee (2012) offered design considerations when studying, for instance, age-related changes in behaviour. They noted that there are three general designs for incorporating a psychological variable or characteristics, such as age, into a research design.

The three strategies are:

1. Cross-sectional design,
2. Longitudinal design and
3. Sequential design.

Each of these designs is considered in more detail, critically evaluated and illustrated with examples of a study that incorporated the particular type of design. YouTube videos depicting these three designs can be viewed in Activity 2.1.



LEARNING ACTIVITY 2.1 • For Tutorial Discussion

Please look at the YouTube videos on research designs, which are ideal for examining topics related to lifespan research and developmental psychology.

Headlessprofessor (2009, Aug 5). Lifespan Research: cross sectional & longitudinal. [Video file]. Retrieved from <http://www.youtube.com/watch?v=aKEiWLxQgil>

Fastforwardprogram (2011, Oct 6). Longitudinal Study Shows Significant Fast For Word Gains Endure Over Time. [Video file]. Retrieved from <http://www.youtube.com/watch?v=aOa-A42blZg&feature=related>

Schallhorn, C. (2012, May 2). Longitudinal v Cross-sectional Studies. [Video file]. Retrieved from <http://www.youtube.com/watch?v=LL2CESAd8KA&feature=related>

Read the article by Hanson, W.E., Creswell, J.W., Plano Clark, V.L., Petska, K.S., Cresswell, J.D. (2005). Mixed Methods Research Designs in Counseling Psychology, *Journal of Counseling Psychology* 52(2) pp. 224–235 at <http://digitalcommons.unl.edu/psychfacpub/373/> and in the Unit 2 reading folder

Your tutor would divide the tutorial group into sub-groups and assign each student or sub-group the task of either looking at one of the YouTube videos or reading the article by Hanson et al. (2005). Tutees must present their information at the tutorial discussion and debate the merits and demerits of using the three research designs for psychological research. This is a formative assessment task which will help you to understand the Unit notes.

One student in the group must be designated a reporter and present a 200 word summary of the group's discussions in the relevant discussion forum in the Learning Exchange. This report is due by the end of week 3.

Cross sectional designs

Cross-sectional design study different groups of people of different ages. Thisted (2006) identified some of the advantages of this type of design.

- * First, it is cheaper and easier to conduct than a longitudinal study because no follow-up is required hence there is a reduction in research costs.
- * Second, this design affords good control over the measurement process.
- * Third, the design can maximize completeness of key data, compared to a retrospective study which asks subjects to reflect on events in the past.
- * Fourth, cross-sectional designs have greater control over precision of estimates in subgroups; for example, in stratified sampling.
- * Fifth, data collection using this design can often be accomplished as secondary data analysis, that is, data collected by someone else and possibly for another purpose.

There are also limitations of cross-sectional designs.

- * First, in secondary data analysis, there is no control over purpose, choice, or method of data collection.
- * Second, the design cannot tell us about causal relationships —because of the lack of control– it can only identify correlation relationships.
- * Third, generalizability is limited to the characteristics of the sampled population and the definition of the overall population.
- * Fourth, sample size requirements may be very large particularly when looking at rare outcomes or exposures.
- * Finally, there is the potential for selection bias. For example, “Length-biased sampling” results from the fact that individuals with long courses of a disease are more likely to be the ones identified as prevalent cases than people with courses of short duration.

Longitudinal Designs

Longitudinal designs differ from cross sectional designs because the same people are studied over a period of time. Sanson et al. (2002) provide a detailed example of research conducted using this design in their study on the Longitudinal Study of Australian Children (LSAC). The aim of their study was to establish new partnerships to strengthen families and communities and to develop and deliver solutions at a local level. The study has underlying developmental psychological principles as suggested by the study’s broad research questions. The study design is copied from the publication and cited in the box below.

Study design

A longitudinal design is essential to explore the developmental sequences that place children at risk, and to illuminate protective factors. A multiple cohort cross-sequential design has been selected, providing for coverage of two cohorts expected to be as follows:

- A minimum of 5000 children aged less than 12 months, selected in 2003, and followed at least every two years until they reach 6–7 years of age in 2009; and
- A minimum of 5000 children aged 4–5 years when selected in 2003, and also followed at least every two years until they reach the age of 11–12 years of age in 2009.

There will be two stages in the development and implementation of LSAC.

In Stage One, the study design and instruments will be refined and tested, and a detailed project plan will be developed. This stage is expected to take approximately one year. In Stage Two, (currently projected at eight years), the data will be collected and prepared for release to users. Study participants will include the child (when of an appropriate age) and their parents, as well as child care providers and teachers. Methods of data collection will include face-to-face interviews, questionnaires, observations and direct assessment. The sample will be clustered, with clusters most likely to be based on postcodes, enabling data on characteristics of the children's communities to be gathered.

The Research Questions of the LSAC are:

- How well are Australian children doing on a number of key developmental outcomes?
- What are the pathway markers, early indicators, or constellations of behaviours that are related to different child outcomes?
- How are child outcomes interlinked with their wider circumstances and environment?
- In what ways do features of children's environment (such as families, communities, and institutions) impact on child outcomes?
- What factors help maintain an effective pathway, or change one that is not promising?
- How is a child's potential maximized to achieve positive outcomes for children, their families and society?
- What role can the government play in achieving these outcomes?

The data collected by Sanson et al. (2002) contributed to the understanding of early childhood development, it was used to inform social policy debate and used to identify opportunities for early intervention and prevention strategies in policy areas concerning children. These included parenting, family relationships and functioning, early childhood education, schooling, child care, and health. The research has the potential to be influential and applicable to youth development work but the choice of using this design must be carefully considered in line with the advantages and disadvantages associated with this particular design documented below.

The authors identified the advantages and disadvantages of their design to their overall plan (Sanson et al., 2002, p.7-8). Their research questions can be easily applied to other disciplines.

Advantages and disadvantages of longitudinal designs

Longitudinal studies enable factors of interest to be examined for their stability and continuity over time, and allow developmental sequences to be identified. For example:

Do behavioural difficulties exhibit different manifestations at different ages?

How far can later events be predicted by earlier events?

Can anxiety in early or middle childhood be traced back to a particular style of temperament or parenting in infancy?

Is childhood obesity preceded by particular parental expectations or parenting practices in toddlerhood?

By establishing the time ordering of events, longitudinal studies can help establish causal relationships.

In addition to exploring the developmental sequences that place children at risk, a longitudinal design can illuminate the factors that protect children against risk and create resilience.

That is, why do some children who are exposed to adverse conditions still do well?

What can we learn from observing the developmental sequences of those children?

Understanding children's developmental sequences sheds light on when intervention would be most effective (Farrington, 1991).

A further advantage of a longitudinal design is that it enables us to differentiate between change over time in aggregate (group) data and changes within individuals or changes in a population at risk. While cross-sectional data only allow investigation of differences *between* individuals, longitudinal study can examine change *within* individuals, as well as variation between them (Farrington, 1991).

While having many advantages over cross-sectional research, longitudinal research also poses several challenges. It is crucial to select the most appropriate longitudinal design. Farrington (1991) presents a clear discussion of the strengths and weaknesses of various longitudinal designs. After careful consideration of all the issues raised, and bearing in mind the currently allocated budget, the Department of Family and Community Services and the LSAC consortium have elected to employ a type of accelerated longitudinal design, namely, a multiple cohort cross-sequential design. These terms are explained below.

A *cohort* is a group of individuals born around the same point in time (typically within one year). A *multiple cohort* design uses more than one cohort. In the case of LSAC, there will be two cohorts: one of children under the age of 12 months at the commencement of the study, and another of four year-olds. Using more than one cohort of children allows greater confidence that the results obtained are not specific to one cohort but can be generalized to other groups of children. LSAC is an accelerated longitudinal design in that, over the currently projected data collection period (2003–2009), it will be possible to examine children's development from birth to the age of about 11 years. It is *cross-sequential*, in that there will be data on children of the same age from the two cohorts at different points in time (for example, on four–five-year-olds from cohort 2 in 2003 and cohort 1 in 2007). An advantage of such a cross-sequential design, in comparison to a single-cohort study, is that it is not so long before results are available, and there is less concern that theories, instruments, and policy issues will be out of date by this time.

A cross-sequential design also reduces difficulties in sample retention over time, since the total follow-up time is shorter. Farrington (1991) recommends a follow-up period of about seven to eight years to maximize advantages and minimize disadvantages of longitudinal studies. This is the time frame over which LSAC will follow the children and families in the study, although it is to be hoped that the study will continue indefinitely.

Another potential problem of longitudinal studies is that *age* or *developmental effects*, *time of measurement* or *period effects*, and cohort effects may be confounded (Farrington, 1991). It is important to distinguish between these different types of effects.

Several international data archives store longitudinal data and if you would like further details you can look at this collection by clicking on the hyperlink <http://www.data-archive.ac.uk/>

By the end of this unit you would be in a good position to ascertain the potential of cross sectional and longitudinal designs for eliciting information that is relevant to youth development work.

The Sequential Design

The sequential design combines cross-sectional and longitudinal designs. Hanson, Cresswell, Plano Clark, Petska and Cresswell (2005, p. 229) offer a comprehensive analysis of the sequential design which they refer to as the mixed methods research designs. A few key points from the article are provided but you are encouraged to complete Activity 2.1 to add to the material presented here. You will also learn about quantitative and qualitative methods that psychologists and youth development workers can apply to their scientific inquiries.

Sequential designs. There are three types of sequential designs:

1. Sequential explanatory
2. Sequential exploratory
3. Sequential transformative

The key features of each design are delineated below.

A. Sequential explanatory designs

- ◇ In these designs, quantitative data are collected and analyzed, followed by qualitative data.
- ◇ Priority is usually unequal and given to the quantitative data.
- ◇ Qualitative data are used primarily to augment quantitative data.
- ◇ Data analysis is usually connected, and integration usually occurs at the data interpretation stage and in the discussion.
- ◇ The sequential explanatory designs are particularly useful for, as its name suggests, explaining relationships and/or study findings, especially when they are unexpected.

B. Sequential exploratory designs

- ◇ In sequential exploratory designs qualitative data are collected and analyzed first, followed by quantitative data.
- ◇ Priority is usually unequal and given to the qualitative data that are not known.
- ◇ They allow refining and testing of emerging theory.
- ◇ The designs facilitate the development of new psychological test/assessment instruments based on an initial qualitative analysis.
- ◇ They permit generalizing qualitative findings to a specific population.

C. Sequential transformative designs

- ◇ Sequential transformative designs use an explicit approaches (e.g. feminist perspectives, critical theory), which is usually reflected in the purpose statement, research questions, and implications for action and change.
- ◇ In these designs, quantitative data may be collected and analyzed, followed by qualitative data, or conversely, qualitative data may be collected and analyzed, followed by quantitative data.
- ◇ The sequence chosen depends on the needs and preferences of the researchers and the objectives of the study being undertaken.
- ◇ Data analysis is usually connected, and integration usually occurs at the data interpretation stage and in the discussion.
- ◇ These designs are useful for giving voice to diverse or alternative perspectives, advocating for research participants, and better understanding a phenomenon that may be changing as a result of being studied.

Qualitative and Quantitative Research Methods

Before discussing the various research methods that are commonly used by psychologists to answer their research questions, to test the relationships between variables or to determine the applicability of a psychological theory to a specific social phenomenon,

it is important to establish that there are two groups of research methods that all social scientists use; namely, qualitative and quantitative research methods. The chapter on 'Appropriate Research Methods' in the e-source *Behavioural and Social Sciences*, discusses qualitative versus quantitative methods and the hard versus the soft approach to scientific investigation. In this resource material it is suggested that the dichotomous approach to describing research methods as qualitative versus quantitative is somewhat crude and it may be inaccurate. The impression might be given that quantitative methods such as the experimental method which collects numerical data and tests cause and effect relationships, is a stronger research method than a qualitative one, such as the participant observation method that is used to collect non-numeric data but generally sheds light and depth on a particular psychological phenomenon. In reality, most psychologists incorporate some qualitative and some quantitative methods in order to derive a comprehensive understanding of the research issue under empirical investigation. In other words, qualitative and quantitative research methods should be viewed as complementary research methods and not competing ones. An example of this mixed method approach is cited in the subsection on longitudinal designs; specifically, the study by Sanson et al. (2002). In their study on the Longitudinal Study of Australian Children (LSAC) the authors noted that their methods of data collection include face-to-face interviews, questionnaires, observations and direct assessment.

As is aptly noted in the e-source *Behavioural and Social Sciences* we need to:

"Understand that there is no right or wrong methodological approach; rather, the central concern should be the appropriateness of the method to the problem being investigated, the knowledge base, the resources available (including both financial and person power), the socio-cultural context, and the level of analysis." (Office of Behavioural and Social Sciences Research, (n.d.), p. 1).

Qualitative Research

Details on qualitative and quantitative methods are not given much attention in psychological textbooks but sufficient resource materials exist in a variety of social science textbooks that you can access via the Open Campus Library using UWIlinc in order to supplement the information that is documented in the e-source *Behavioural and Social Sciences*. Some key points from this e-source are summarized for your perusal.

1. The main strength of qualitative research is its ability to study phenomena which are simply unavailable elsewhere. For example, observing how jurors react to evidence presented by the prosecution and the defence counsel in a murder trial in the Supreme Court.
2. Types of data collection that are associated with qualitative research in the health care system include observations, interviews and focus groups, analysis of official records and other relevant documents, videos of health-related behaviour, and audio-recorded communication.
3. Criticisms of qualitative research methods are based on the following:
 - i. Quantitative research methods, such as non participant observations, can amount to a quick fix involving little or no contact with people or the field under investigation.

- ii. Statistical correlations may be based upon 'variables' that, in the context of the naturally-occurring interaction, are arbitrarily defined.
- iii. There may be after the fact speculation about the meaning of correlations which may be based on common sense reasoning that the scientific process seeks to avoid.
- iv. The pursuit of 'measurable' phenomena may introduce unperceived values into the research. For example, the use of unreliable or concepts such as 'discrimination' or 'empathy' that were not accurately defined and operationalized for the study being conducted.

Quantitative Research

In order to vary the medium in which this section is presented there will be less reliance on text information and more on the notes that are presented in a YouTube video. The video offers a comparison of qualitative and quantitative research methods delivered by Professor Shawn Clankie on May 2012 which can be accessed via the hyperlink <http://www.youtube.com/watch?v=LYqDKesy9gE>

Although some of the key points are listed below, you are strongly encouraged to watch the video because the material would be part of your summative assessment test via a multiple choice or short answer test on Units 1-5 as part of Assignment 3 outlined on page 32 of the course guide.

Some of the key points of the video are listed below.

1. Quantitative research is numbers driven. It uses binary data (1, or 0); 1 means the presence of a variable, 0 is the absence of that variable.
2. Quantitative research uses statistics and mathematics. For example, after conducting a survey the investigator would want to know the amount of times, or the frequency with which, an event occurred.
3. The aim of quantitative analysis is to classify information by first counting occurrences and then providing a statistical model for explaining these occurrences.
4. Counting offers information regarding types, tokens and anomalies (something that is outside of the norm or pattern) in the data.
5. In quantitative research the researcher generally knows what he or she is looking for (largely based on theories and published reports of other scholars).
6. Qualitative research may collect some data but the primary goal is to look for the whole picture and to collect information on the background or the context of a phenomenon.
7. In the qualitative research method the researcher may not always know what he or she will find. For example, when naturalistic observation is undertaken the researcher records all events, some of which may be anticipated but most of which may be completely new information.

Psychological Research Methods

The preceding discussion on research designs and the differences between qualitative and quantitative research methods introduced you to research methods. We will now critically examine and evaluate some of these research methods in more detail but please bear in mind that this is not a finite list. As you read the relevant literature from the Open Campus library and you view the YouTube presentations cited in activity 2.2 you will be exposed to more methods that are available for undertaking psychological research.

“The easiest way to understand research methods is to look at a specific question and the alternative ways that we might answer it.” (Boyd & Bee, 2012, p. 11) This is indeed very good advice and by the end of this unit you would have the practical experience of undertaking a similar task. Each academic writer favours particular designs and methods in their publications but reading a few of these publications will provide you with wide-ranging and comprehensive knowledge. The scientific method assumes order and predictability. Mention will be made of some of the traditional research designs and methods utilised by social scientists that are adopted and refined by social psychologists to suit the subject of their enquiry. Research methods are broadly of two kinds: experimental (experiments) and non-experimental (e.g. simulation or role playing techniques, and case studies). Developmental psychologists such as Boyd and Bee (2012) separated research methods into descriptive methods (naturalistic observations, case studies, laboratory observation, surveys, correlations) and the experimental method. Briefly, descriptive research aims to simply describe what happens in a psychological context. An example of a descriptive statement is ‘Older adults make more memory related errors than younger adults.’ To move beyond a descriptive statement and to test cause and effect of age on memory, one would need to use another research method, such as an experiment. Experiments are associated with a great deal of scientific control over the **variables** being studied in order to achieve the order and predictability that are required of a scientific method. In contrast, experimental control is lacking in non-experimental research designs and this reduces the extent to which the research results can be generalised.

The research methods that are commonly utilized by psychologists such as experiments, simulation exercises or role playing, case studies, observations and surveys will be assessed in this Session but there are other methods such as conversation analysis and clinical trials that you should read about using sources in the Open Campus Library and the APA website below. <http://www.apa.org/topics/index.aspx>

To assist you with a strategy for note taking, brief critical reviews of selected methods are presented.

Boyd and Bee (2012) noted that a researcher who is interested in knowing how memory is related to changes in age over the life span must first decide how to go about finding the relationships between the variables age and memory. A working definition of a **variable** is anything that is subject to variation; in psychological research, any stimulus, response, or extraneous factor that is changeable and that may influence the results of the research. For developmental psychologists variables are characteristics that vary from person to person, such as physical size, intelligence, and personality. Boyd and Bee stated that when two or more variables vary together there is some kind of relationship between them. The

authors discussed naturalistic observation, case studies, laboratory observation, surveys, correlations and the experimental method.

Naturalistic Observation

Boyd and Bee (2012) indicated that when psychologists use **naturalistic observation** as a research method, they observe people in their normal environments. For instance, if one would like to understand the memorial skills and abilities of older adults compared to memory related skills and abilities of children, a researcher could observe both groups in their homes or workplace. Such studies provide information about psychological processes in everyday contexts. The e--source Behavioural and Social Sciences identifies the advantages of the observation method as being the following:

1. It allows the researcher to see through the eyes of the group or person under investigation.
2. It is rich in descriptive information that sheds light on what is going on in a particular situation.
3. It provides the context for the behaviour of groups and individuals. According to some writers we can better understand events and behaviour when they are situation in a wider social and historical context.
4. Observations help the researcher(s) to understand the dynamics of the processes that underlie human behaviour as social life is viewed as a involving an interlocking series of events.

Boyd and Bee (2012) stated that the main weakness of naturalistic observation is observer bias. If the researcher undertaking the observation task has pre-conceived notions (that is, biases or stereotypes) of what he or she expects to occur, this knowledge can influence the interpretation of the information observed. Avoiding or minimizing observer bias can be achieved by:

1. Using observers who are scientifically trained and are aware of the requirements of the scientific process. These scientific criteria were discussed in detail in Unit 2.
2. Using observers who do not know what the study is about (called 'blind' researchers) because they are less likely to have pre-conceptions about the study and its findings than someone who is very familiar with the study.

Other limitations of this research method include the fact that it is time consuming and the results tend to be limited to the sample of persons observed. This means the results cannot be generalized to other groups of people with characteristics that vary significantly from the sample characteristics. In other words, the study lacks **external validity**. This is discussed in more detail below. Repeating the observations with a wider group of subjects over different conditions such as diverse settings and periods of time may overcome the limitation of the lack of generalization.



LEARNING ACTIVITY 2.2 •

Follow the links below to view these naturalistic observations

1. http://www.youtube.com/watch?NR=1&feature=endscreen&v=_n70s1sq-ns
2. http://www.youtube.com/watch?v=hZVw_rQfms8
3. <http://www.youtube.com/watch?NR=1&v=iOEA9qGf5uk&feature=endscreen>
4. <http://www.youtube.com/watch?v=mpskDDNH7R0>
5. <http://www.youtube.com/watch?v=sHLzCsIIFZY>
6. <http://www.youtube.com/watch?v=KQ9NKeu9Ib0>

Case studies

A case study is an in-depth examination of a single individual. Sometimes the intensive study of a single individual, group, event or incident will shed new light on aspects of human behaviour. For example, psycho-biographies use psychological insights to reinterpret the lives and careers of outstanding individuals. If one wanted to test the hypothesis about memory and age one could use a case study approach and compare one subject's scores on a memory test at various stages in the life span – such as early childhood, adolescence, adulthood and late adulthood- with a small number of other cases or subjects. Such a study might reveal a lot about the stability or instability of memory in the individual studied but there will be some uncertainty about the extent to which such findings can be applied to the majority of people in the population.

Case studies have traditionally been used by anthropologists and sociologists but can be successfully applied to psychological research. The primary advantage of case studies is that they provide a rich body of data in almost any environment. Hence the method is very versatile and it enables scientists to lavish much attention on the subject of inquiry thus generating vast amounts of information. Major incidents, such as the September 11th or 9/11 terrorist attacks in the USA in 2001, represent events that happen only once in a lifetime. The causative factors and impact of the 9/11 attacks were successfully studied since 2001 creating a vast body of literature from discussions, films, books and new law.

1. The first disadvantage of the case study approach to psychological research is that the study of unique events is limited in its applications to other similar events.
2. The second limitation is that by default a case study does not utilise a control group, like the experimental approach does, to compare the group or event under study.
3. This method may also lack the external validity that is associated with naturalistic observations which are a form of case studies. Although the results of case studies may well be applied to other groups or situations, we cannot make a clear generalization from a case study. Nevertheless, case studies have a contribution to play in understanding individual behaviour and generate useful data for psychologists.

Laboratory Observation

Laboratory observation differs from naturalistic observation in that the researcher exerts some degree of control over the experiment by manipulating the conditions under which the study occurs. For example, if the researcher would like to study how witnesses react to a crime, or to measure what aspects of a crime scene can be better remembered; for instance, the presence of a gun or several perpetrators versus one perpetrator, then the investigator would ensure that these elements are part of the crime experiment. The use of a one-way mirror in which the experimenter is hidden from view and does not affect the reactions of the subject-witnesses or recording via the use of hidden cameras along with covert surveillance can also be introduced into laboratory observations. Later in Unit 2 research ethics that guide such deception will be covered. Although this is a limitation of naturalistic observation the primary advantage of this method is that observing behaviour under controlled conditions offers many advantages over trying to observe a crime in a naturalistic setting which could be potentially very dangerous.

Survey

Have you ever been solicited for your comments when a company is engaged in product testing? For example, you might be asked about your preferred daily and weekly newspaper or your nightly television news station. Do you recall that in the period leading up to national or local elections in your country of residence how election polls attempt to gauge the voting preferences and behaviour of the public in order to predict the results of the national elections? If you have participated in a survey or read the results of a survey you would have a fair idea about the nature, scope and purpose of surveys. A **survey** can be defined as a study in which researchers use interviews and/or questionnaires to collect data about attitudes, interests, values and various kinds of behaviour. Surveys allow researchers to quickly gather information and to track changes in attitudes or behaviour over time – for example, public opinion polls on voting preferences.

Issues regarding the selection of subjects for a study have been briefly mentioned so far in the session. Likewise, surveys are also based on specific sampling principles and issues. It has been argued that “the value of any survey depends entirely on how representative the **sample** of participants is of the researcher’s **population** of interest.”

Boyd and Bee (2012, p. 13). A **population** is defined as the entire group about which the researcher is attempting to learn something. In contrast, a **sample** is a sub-set of the population. For example, developmental psychologists may want to know the learning abilities of six year old male and female students in the primary school system but the actual research may only be conducted with a sub-set of 20 six year old male and female students in each of the 4 or 5 schools targeted for the research. Thus the sample includes only the people who are actually questioned by the researchers. If the sample is not a representative sample – that is, it does not include for instance the same proportion of six year old boys and girls – then the survey results will be inaccurate. This is why issues of simple random sampling versus stratified sampling become relevant to a study.

Random sampling is a procedure that ensures that each and every element of the population has an equal chance of being selected for the study. For example, using a list of persons

registered to vote and polling every 2,000th person on that list. Random sampling is a key aspect of experimental research to ensure that, apart from the experimental manipulation imposed by researchers, participants in the control and the experimental group in a study has the same probability of being selected for either group. In other words, there was no bias in the selection of subjects for the control and the experimental group or groups.

Stratified sampling is used to increase precision in sampling. Before any sampling is undertaken the population is divided into a number of strata; for example, on the basis of age of respondent, sex of respondent, or ethnicity of respondent. A random sample is then taken from each stratum. This procedure is an improvement over simple random sampling.

Another limitation of surveys is that participants may give responses that may not necessarily be reflective of their actual opinion but the responses are geared towards social desirability- for example, responses to questions pertaining to the respondent's travelling plans, level of income or number of cars owned. Surveys can often be combined with other research methods. The Jamaican study by **Hutchinson, Simeon, Bain and Wyatt** (2004) utilized the interview method as part of a decision-making survey. Reading this article will help you to understand the use of the survey method. Briefly, the study investigated the variables that best predicted psychological well being in Jamaica and also those associated with feelings of satisfaction with life. Interviews were conducted on adults aged 15–50 years as part of a sexual decision-making survey in Jamaica. This study can be accessed via the Resources Material Folder for Unit 2.

Correlation Studies

A correlation is a relationship between two variables that can be expressed as a number ranging from -1.00 to + 1.00. A zero correlation indicates that there is no relationship between the two variables while a positive correlation indicates that a high score on one variable is accompanied by a similarly high score on another variable. For example, one might speculate about the effect of providing rewards and reinforcements by teachers on the performance of their students in primary schools. One may believe that rewards automatically increase performance – a positive relationship because as the level and frequency of rewards increase this should be matched by an equal rise in performance. However, if the data from scientific investigations reveal that there is a negative relationship, or alternatively a zero relationship, what does this finding suggest to the psychologist? It may mean students are motivated by a reward system because other variable are impeding their school performance. Perhaps a revision of the teaching method is needed to make course delivery more exciting and applicable to the age group being taught. Teachers may need to probe further to understand the reasons for the under performance of their students. Students may be experiencing home problems that prevent them from focusing on their work. You can read about the strengths and limitations associated with correlation studies by accessing information at the hyperlink <http://www.apa.org/topics/index.aspx>

The website will give also details on the methods associated with gap analysis, focus groups and interviews and you are strongly encouraged to make your own notes to supplement the material in this webinar as your knowledge of these methods will be tested later in this course.

Experiments

Experiments seek to explain the effect of one variable (called an independent variable or stimulus) on another variable (called the dependent variable or the response). For example, the effect of (1) administering praise and rewards to children when a specific prosocial behaviour that is being encouraged is exhibited –the experimental condition– *versus* (2) the effect of withholding praise and rewards to children when the prosocial behaviour is exhibited –the control condition. The variable that is either being withheld or given is called the **control variable**. It is the norm that research participants are randomly assigned (i.e. by chance rather than by deliberate intent) to either the experimental or the control conditions of a study. Social learning theory assumes that in the former scenario, children will continue to repeat the prosocial behaviour even when the praise and reward is eventually withdrawn – an indicator that learning has occurred. However, children who were not encouraged by the offer of rewards and praise to adopt prosocial behaviour will fail to learn this behavioural response. Social investigators have direct control over the independent variable or the stimulus variable that is utilised in their experiments. One of the primary advantages of a psychological experiment over any other research method is that it has a high degree of **internal validity**, (Penrod, 1986). This means that given the experimental and control situations previously discussed, the research findings are solely a result of the manipulation of the independent variable. There is a low risk that other unmeasured or uncontrolled variables will confuse the results of the study.

When researchers examine the results of an experiment they must take a critical look at their findings.

1. The first disadvantage of the experimental method relates to the **external validity** of the study; that is, can the results of the study be generalised to the larger population? (Penrod, 1986) Would the results of the study be the same if a different group of research participants was utilised? For example, would the degree of accuracy for recalling a previously presented crime event be the same for adult witnesses and child witnesses, for senior citizens and young adults?
2. Second, laboratory experiments have also been criticised for lacking experimental realism. “The conditions of the experiment have no real impact on the subjects’ lives. They do not believe in the reality of the test situation, they do not take it seriously, or they may suspect the purpose of the research. They will not be giving authentic responses to the test situation, and as a result the findings will not apply to any other group of people or be representative of naturally occurring processes.” (Penrod, 1986, p. 37)
3. Third, experimental research has also been criticised for lacking in mundane realism; that is, to what extent can events created in a university laboratory replicate real-world conditions? The laboratory setting is artificial and does not resemble the courtroom, hospitals, schools and other settings to which researchers want to generalise.

Simulation and Role Playing Techniques

Penrod has a very good discussion on simulation and role playing techniques, discussed below. Some behaviours and attitudes can only be tapped accurately by means of innovative role playing techniques. For instance, it is very difficult to study eyewitness behaviour and reactions to a naturally occurring crime. Ethical considerations also place severe limits on a researcher's ability to do this. Other challenging situations include research into the behaviour of prisoners and into jury decision-making. Simulation or role playing techniques provide a solution to the aforementioned problems by attempting to re-create in the laboratory environment situations that could otherwise be unavailable for study. One can, for instance, construct a realistic mock jury scenario or mock prison that will allow researchers a large measure of control over physical conditions and an opportunity to observe behaviour that occurs spontaneously. The purpose of the experiment is explained in advance to participants and subjects are then asked to behave as if the situation was real. Many role playing studies ask subjects to predict how they would behave in a given situation. The obvious limitations of the role playing or simulation exercises are:

1. People cannot always predict accurately how they would behave in certain situations –some times they can only guess;
2. Even if participants have the meta-cognitive skills (i.e. insights about their knowledge) to predict accurately, they may be reluctant to reveal such behaviour to researchers or they may conform to the wishes of the experimenter to create a good impression; and
3. Research participants will not often behave spontaneously if they know that they are being observed.



LEARNING ACTIVITY 2.3 • Summative assignment 1

Using your own knowledge, the YouTube video presentations listed in this activity or other academic resources that are available in the Open Campus Library answer the questions below.

Select one research method from the list below:

Case study, laboratory observation, survey, correlation study, experiment, simulations or role playing

1. Compare the advantages and disadvantages of the research method that you selected. – 300 words (3 marks)
2. Find a published study that utilizes the research method that you selected in question 1 to examine a particular issue or social problem of your choice. Justify why the research method that you selected was the appropriate one for the study undertaken. – 300 words (3 marks)
3. Post in the discussion forum in the Learning Exchange a 300 word comment on the limitations of the research method in the study that you selected in question 2.– 300 words (3 marks)



LEARNING ACTIVITY 2.3 • Summative Assignment 1 Cont'd

4. Could the research method that you identified in the study that you selected in question 2 be empirically examined in another more effective way with another research method? Justify and illustrate your response with examples. – 300 words (3 marks)
5. Marks will be awarded for adherence to the correct use of English grammar, spelling, use of APA style of referencing, and the use of two peer reviewed articles to inform your discussion. (3 marks)

Further rubrics for this assignment will also be posted in the Learning Exchange.

Please upload your word file with your responses in the drop box for Assignment 1 in the course site. You must write no less than 1200 words. **This assignment is worth a maximum of 15 marks and your score will contribute to your final course mark. Your Course Coordinator/Tutor will inform you of the due date..**



Useful Links/Resources

Some resources for your consideration

Campen, D. (2009, May 20). Research Methods - Experiments & Correlations. [Video file]. Retrieved from <http://www.youtube.com/watch?v=MrBSNE-GDUI&feature=related>

TheAnne55. (2009, Oct 17). Unstructured observation. [Video file]. Retrieved from <http://www.youtube.com/watch?v=2LxWdGF0yuo&feature=related>

Coolpsychologist. (2009, June 9). The Bystander Effect. [Video file]. Retrieved from <http://www.youtube.com/watch?v=OSsPfbup0ac&feature=related>

Keenermarc. (2009, May 21). Baby Left in car – social experiment. [Video file]. Retrieved from <http://www.youtube.com/watch?v=2OdKow7IAuw&feature=related>

Headlessprofessor. (2009, Aug 5). Lifespan Research: cross sectional & longitudinal. [Video file]. Retrieved from <http://www.youtube.com/watch?v=aKEiWLxQgil>

DevPsync. (2009, Aug 17). Research Methods in Psychology – Part 1. [Video file]. Retrieved from <http://www.youtube.com/watch?v=PrII9oErJJg&feature=related>

DevPsync. (2009, Aug 17). Research Methods in Psychology – Part 2 [Video file]. Retrieved from <http://www.youtube.com/watch?v=5KoRfdC1I-o&feature=relmfu>

Campen, D. (2009, May 20). Research Methods - Experiments & Correlations. [Video file]. Retrieved from <http://www.youtube.com/watch?v=MrBSNE-GDUI&feature=related>

GSWfan 2009. (2010, July 31). Case study interview.mov. [Video file]. Retrieved from <http://www.youtube.com/watch?v=9U-rN2eDNZM&feature=related>



Useful Links/Resources

Neill, J. (2010, Mar 16). Survey research & design in psychology - Tutorial 3 - Exploratory factor analysis smoking example. [Video file]. Retrieved from

<http://www.youtube.com/watch?v=S9TiniR1scU&feature=relmfu>

Hutchinson, G., Simeon, D. T., Bain, B.C., & Wyatt, G.E. (2004). Social and health determinants of well being and life satisfaction in Jamaica, *The International Journal of Social Psychiatry*. Mar 2004. Vol. 50, Issue 1, pp. 43-53. (Available in Unit 2 reading folder in Learning Exchange)

Session 2.1 Summary

Reflect and Review

This was a very lengthy session but it is important to cover the material as comprehensively as possible because the notes provide the foundation blocks for the course. There were some troublesome concepts in the text to contend with but a glossary of terms is provided at the end of this Unit and the activity tasks were designed to help you understand and remember the 'troublesome concepts'.

The preceding discussion examined the research designs and methods that psychologists or behavioural scientists may choose to use in their quest for scientific knowledge. Critical assessments were provided of three main designs – cross sectional design, longitudinal design and sequential design. The discussion of design choices briefly hinted at the research methods and the types of studies that can be undertaken using specified research designs. Some time was spent outlining the strengths and limitation of naturalistic and laboratory observation, experiments, simulation or role playing techniques, case studies, surveys, and correlation studies. Issues of sampling were also documented in Session 2.1. In review, it is important to note that the major methods do not compete with one another to explain the same event or behaviour. You are likely to conclude that a single method is inadequate to truly understand any phenomenon under investigation. Hence, investigators often resort to using a combination of research methods and techniques known as '**triangulation**'.

An important objective of this session was to provide the necessary information about the range of psychological theories or approaches that are available for you to develop your knowledge base and skill set to achieve among other competencies, competency YDWCYP0263, YDWCYP0293, and YDWCYP0413. You are encouraged to test yourself for your understanding and memory of the information presented in Session 2.1 before proceeding to Session 2.2. Remember to re-read the items of information that you missed in your initial reading or that you forgot.



SELF-ASSESSMENT EXERCISE

The following questions are adapted from Boyd and Bee (2012, p. 21)

In an experiment, what do we call the group of participants who receive no treatment?

- a. Experimental group
- b. Control group
- c. Independent variable
- d. Dependent variable

In which of the following research designs is one group of subjects studied at different points in their lives?

- a. Cross sectional
- b. Sequential
- c. Longitudinal
- d. Cross-cultural

In survey research, a.....faithfully reflects the characteristics of the whole group of people, or being studied.

- a. Representative population, sample
- b. Survey sample, population
- c. Representative sample, population
- d. Survey population, sample

Which type of research design is intended to avoid the limitations of both cross-sectional and longitudinal studies by combining features of both designs?

- a. Correlational study
- b. Sequential design
- c. Longitudinal case study
- d. Cross-longitudinal design

What are cohort effects?

- a. Findings that are the result of historical factors to which one age group in a cross-sectional study has been exposed?
- b. Findings from the control group.
- c. Findings from a survey.
- d. Findings that relate to the effect of an independent variable on a dependent variable.



Key Points

1. Psychological research designs and methods offer scientific ways for separating 'commonsense knowledge' of the world and explanations of why people behave as they do, from factual information.
2. We looked at three research designs – cross-sectional, longitudinal and sequential – and approximately eight research methods – naturalistic observation, laboratory observation, case studies, surveys, correlational studies, experiments, role playing and simulations.
3. Mention was made of qualitative and quantitative research methods. The former examines the whole picture, the background and context of a psychological event or occurrence in addition to data. The latter concentrates on statistics that facilitate classification and the building of statistical models to explain why an event occurred as well as the relationship between variables.
4. Sampling issues are relevant to the scientific process to ensure that external validity is maintained. Random and stratified sampling techniques were explained and illustrated with examples.
5. Psychologists are involved in studying different aspects of human behaviour in diverse settings and they must therefore decide upon which designs and methods are most suitable to gather the information that they require, in the timeframe of the plan and with their budget in mind.

Session 2.2

Ethical Considerations in Psychological Research, Copyrights and Plagiarism

Introduction

In Session 1.1 you were given a lot of information. Session 2.2 takes a slightly different approach to course delivery in that the mode of presentation would be multi-media with a reliance of engaging your visual and auditory senses. Bullet points are given for quick reading and in order to facilitate learning. The teaching style emphasises reflective practice and a work-based approach to learning. The material in Session 2.2 connects to the information presented in Unit 1 and in Session 2.1 of Unit 2. The discussion will include an overview of ethics, copyright issues and how to avoid plagiarism.

Session 2.2 Objectives

At the end of this session learners would be able to:

1. List some of the ethical considerations involved in undertaking psychological research;
2. Link the ethical considerations described in Session 2.2 to the research methods and designs outlined in Session 2.1;
3. Develop an awareness of the need to maintain the strictest codes of practice as part of the scientific process;
4. Adhere to the rules and codes of practice outlined by the UWI Open Campus to respect copyrights and to avoid plagiarism when undertaking your research and in preparing your assignments for submission.

Ethics

The concept **research ethics** can be defined as “The guidelines researchers follow to protect the rights of animal and human subjects who participate in studies.” (Boyd & Bee, 2012:17) Ethical considerations are not confined to psychological research but in general social scientists relying on humans for their data must adhere to guidelines that form international codes of best practice. These guidelines are outlined in the YouTube video cited below and in the ethical criteria outlined by Penrod (1986).



LEARNING ACTIVITY 2.4 •

First, please look at the following video and make your own notes on ethical considerations underlying psychological research.

Hooley, T. (2008, Mar 11). Online research ethic. [Video file]. Retrieved from <http://www.youtube.com/watch?v=7T8t11Vqht0&feature=related>

Second, you must read the American Psychological Association's (APA) guidelines regarding ethics and ethical consideration. The index of topics can be accessed via hyperlink <http://www.apa.org/topics/index.aspx>

Third, access the relevant session titled 'Experiment Ethics in Psychological Research' on mydevelopmentlab.com in the e-resources that accompany your course text (Boyd & Bee, 2012, 17)

Fourth, watch the video 'Before informed consent' by Robert Guthrie on mydevelopmentlab.com in the e-resources that accompany your course text (Boyd & Bee, 2012, 18)

Consider all the information that you acquired on ethics from the above sources. Reflect on the ethical considerations that must be adhered to when investigating youth related issues or when gathering data from young people. Post your reflections in the Discussion Exchange in 200 words. **This is due by the end of week 3.**

Penrod (1986) identified the following ethical issues in psychological research:

1. Should researchers study people without their knowledge or consent?
2. Should researchers coerce subjects into participation?
3. Should researchers conceal research objectives, or the study's aims, from subjects?
4. Should researchers actively deceive subjects about the true purpose of their study?
5. Should researchers induce subjects to perform behaviours that reduce their self-respect?
6. Should research that may have a long-term effect on subjects' attitudes be conducted?
7. Should research procedures place subjects under stress?
8. Should research invade subjects' privacy?
9. Should subjects in control conditions receive the benefits given to subjects in experimental conditions?
10. Are there any conditions under which researchers may not treat subjects with respect?

After reading Penrod's checklist of ethical considerations in psychological research you may ask yourself, "Why would psychologists want to deceive their subjects?" Deception as a research technique seems to be unique to psychological scientific inquiry as it does not feature in economic, political or sociological studies. Deception may take the form of

efforts by researchers to withhold or conceal information about the purposes of a study from participants in an experiment or other evaluative study. This technique is frequently employed because if subjects know that they are being evaluated, knowledge of the monitoring process alters their natural behaviour and this would defeat the purpose and intention of the experiment. Thus, the research will not yield valid results about perceptions, attitudes, behaviour or social thought. As a means of mitigating the deceptive technique, ethical guidelines for research insist that any decision to deceive subjects in a study must include a debriefing of subjects at the end of the research to inform them of the true nature of the investigation. Most researchers try to keep deception to a minimum so that subjects can truly give informed consent to their participation in the study or experiment.

The need to take into account ethical considerations can often place severe limits on what social scientists can examine. For example, there is strong evidence that attitudes towards retaining or abolishing the death penalty upon conviction of a crime are affected by either respondents' prior victimization experience or their fear of becoming a victim in the future (e.g., Seltzer & McCormick, 1987). However, measuring the relationship between respondents' attitudes toward the death penalty and their secondary victimization experience (a secondary victim can be a person whose family member was a victim of homicide) is ethically problematic. A 2010 public opinion survey on attitudes towards the mandatory death penalty in Trinidad and Tobago by Professor Roger Hood and Dr. Florence Seemungal faced the following challenge. During the pre-testing of the survey instrument it was discovered that many of the respondents had a close relative or friend murdered in Trinidad and Tobago. Some of these persons were inclined to be very emotional during the interview with the researcher. As a result the link between the secondary victimization experience of a respondent and the attitude toward the death penalty was eliminated in the larger survey of 1000 randomly selected persons because the researchers were not in a position to offer counseling to respondents who could have become very distressed because of their personal tragedy. If you would like to read the findings of the study by Hood and Seemungal (2011) it can be accessed at hyperlink <http://www.deathpenaltyproject.org/legal-resources/research-publications/death-penalty-survey-trinidad/>

Later in this course you will learn more about attitudes, specifically attitude formation and change and how the type of information that is presented to an individual can radically alter the initial view.

Copyrights, 'Copywrongs' and Plagiarism

Read the article by Duane Goehner (1997) titled 'An Ethical Edge in Education: Cognizance of Copyrights and Copy Wrongs'. You are not expected to have detailed knowledge of the article and all the contents. However, you must have an awareness of why you must be careful as a student, academic and practitioner when relying on published material by authors, other than yourself, while undertaking research and course assignments.

Plagiarism

The UWI Open Campus takes the issue of plagiarism very seriously and there are e-resources, surveillance and monitoring mechanisms in place to identify and deal with

instances of plagiarism. A 5-page document on plagiarism can be found at the web-link <http://courses.open.uwi.edu/file.php/1/Plagiarism/Plagiarism-5.pdf>

Please pay particular attention to the opening paragraph which states that,

“At The University of the West Indies all forms of cheating, including plagiarism, are forbidden. Plagiarism has very serious consequences, such as failing to obtain your qualification or being stripped of your qualification. It will always result in the loss of professional respect”.

Additional details about plagiarism can be found in the Undergraduate Student Anti-Plagiarism Policy, Office of the Board for Undergraduate Studies, April 9, 2010 and via the Quick Link in the left hand column of the course page available at hyperlink <http://courses.open.uwi.edu/course/view.php?id=157>

Introduction to Turnitin

What is Turnitin? It is a software program that is available for student and staff use in the Learning Exchange. Students are encouraged to pre-check their documents prior to submitting assignments for grading. Wentworth (2012) states that Turnitin is designed to reveal when students are directly quoting too much from their reading or reference material when submitting assignments. How much is too much? Generally, after uploading your document on Turnitin a familiarity statistic is produced after the software matches your paper—word for word—to other documents in its database. These documents (literally millions of them) are journal articles, college papers, web pages, books and equally importantly your previous submissions of the same assignment. Turnitin flags as too much familiarity when 10% or more of a paper is matched to material in the database and it views this familiarity as plagiarizing from source (s) in the database.

Wentworth offered the following points to consider when using Turnitin.

- **“Don’t worry** about matches in your reference list. There is only one correct way to format an APA reference, and chances are, someone else in the database has used the same source as you. Especially if that source is a college textbook. Therefore, don’t spend time agonizing over the highlights here; they do not mean you are plagiarizing. They just mean you are using a popular source!
- **Don’t worry** about matches in your title or headings. At Walden, students taking the same class are likely titling their papers similarly and maybe even using the same prescribed headings. After these papers are submitted to the course-based Turnitin, they become part of the database. Unless you are indeed copying a fellow student’s paper (and I certainly hope you aren’t!), you can disregard these highlights.
- **Don’t worry** about matches of common terms or phrases. It’s possible that Turnitin will flag common phrases in your field, for instance *No Child Left Behind*, the *Minnesota Multiphasic Personality Inventory*, or even *cognitive-behavioral therapy*. Because there is no other way to describe these particular terms, these highlights are not considered violations of academic integrity. You are simply using the language of your field.”

Areas of concern that require close attention and follow up action include:

- “When reviewing your Turnitin report, if you see long highlights without quotation marks

and a full citation (Author, year, p. xx), you need to jump into action. And by that I mean either adding those elements to reflect a direct quotation from a source or paraphrasing more effectively.

- Note: Even if you do correctly use direct quotes in your paper, your Turnitin score will be high. The only way to lower your score is to paraphrase.
- A percentage of 90-100% means one of two things: first, you are reproducing a fellow student's work, or second, (more likely) a previous version of your paper was submitted to the course-based Turnitin, which logged it in the database. Therefore, you are matching your own writing. If this scenario happens, don't fear! Your instructor can disregard that match (see image to right)."



LEARNING ACTIVITY 2.5 •

This activity is designed to test your reflective skills and creativity and to assess your potential as a functional and effective Caribbean scientist who may be called upon to design or implement programs with a view to offering solutions for addressing contemporary and cutting edge social issues facing the region. Here are some newspaper articles. Read them carefully and consider what research methods might be appropriate for investigating the social issues discussed in the respective articles. Ethical considerations must also be taken into account in your plan. Post your ideas and answer the questions identified below in the discussion forum. Your course colleagues will have the opportunity to view your posting, to question you or to comment on what you write.

BBC News. (2004, Nov 22). HIV warning over reggae lyrics HIV warning over reggae lyrics. BBC News. Retrieved from http://news.bbc.co.uk/2/hi/uk_news/politics/4031847.stm

Gould, J.E. (2013, Mar 29). In Honduras, fighting HIV/AIDS through music and theatre. Retrieved from <http://www.npr.org/2013/03/29/172602211/in-honduras-fighting-hiv-aids-through-music-and-theater>

What are your thoughts on the articles? What research method would you utilise to answer the question, "Can music promote promiscuity or prevent it?" What samples of persons would you choose to ask this question? **Post your comments in 100 words in the forum. This is due by the end of week 3.**

MTN. (2005, Dec 12). Mental disorders in Latin America and the Caribbean Forecast Increase. Retrieved from <http://www.medicalnewstoday.com/releases/34832.php>

Baker, S. (2013, May 31). We need to tackle mental health stigma in African and Caribbean communities. *HuffPost Lifestyle*. Retrieved from http://www.huffingtonpost.co.uk/sue-baker/mental-health-stigma-in-african-caribbean_b_3364647.html

What research method would you utilise to answer the question, "What is the relationship between mental health and homelessness/vagrancy?" What samples of persons would you choose to ask this question? **Post your comments in 100 words in the forum. This is due by the end of week 3.**



LEARNING ACTIVITY 2.5 • Cont'd

Reactions to same-sex partnerships in the Caribbean.

Jamaica Observer. (2012, Dec 15). Popularity of Caribbean island soars after gay wedding. *Jamaica Observer*. Retrieved from http://www.jamaicaobserver.com/mobile/news/Popularity-of-Caribbean-island-soars-after-gay-wedding_13215928

Bagoo, A. (2013, Oct 6). Gay marriage on the rise. *Newsday*. Retrieved from <http://www.newsday.co.tt/news/0,184603.html>

What research method would you utilise to answer the following questions?

Is the level of acceptance or tolerance shown for same-sex partnerships internationally likely to be a feature of Caribbean politics and society? Given the sensitivity of this 'taboo' topic in the Caribbean region, is it possible to know the extent to which same-sex partnerships exist in your country? What samples of persons would you choose to ask the above question? **Post your comments in 100 words in the forum. Learning activity 2.5 is due by week 3.**

How to Critique a Published Psychological Study

What is the nature and purpose of a psychological critique paper? A critique paper is categorized as a professional paper, which helps the psychology student to learn more about psychological articles, writing, and the research process itself. The essential elements of a good critique are listed below.

1. Read the introduction section of the article.

Is the hypothesis clearly stated? Is necessary background information and previous research described in the introduction?

In addition to answering these basic questions, you should take note of information provided in the introduction and any questions that you may have.

2. Read the methods section of the article.

- a. Is the study procedure clearly outlined?
- b. Can you determine which variables the researchers are measuring?

Remember to jot down questions and thoughts that come to mind as you are reading.

3. Read the results section of the article.

- a. Are all tables and graphs clearly labeled?
- b. Do researchers provide enough statistical information?
- c. Did the researchers collect all of the data needed to measure the variables in question?

4. Read the discussion section of the article.

- a. How do the researchers interpret the results of the study?

- b. Did the results support their hypothesis?
- c. Are the conclusions drawn by the researchers reasonable?

The discussion section offers students a good opportunity to take a position. If you agree with the researchers' conclusions, explain why. If you feel that the researchers are incorrect or off-base, point out problems with the conclusions and suggest alternative explanations.

- 5. Once you have read the article thoroughly, prepare an outline of your thoughts on the article. Use the following guide to help structure your critique paper:
 - 6. **Introduction** - Begin your paper by describing the journal article and authors you are critiquing. Provide the main hypothesis or thesis of the paper and explain why you think the information is relevant.
 - 7. **Thesis Statement** - The final part of your introduction should include your thesis statement. Your thesis statement is the main idea of your critique.
 - 8. **Article Summary** - Provide a brief summary of the article, outlining the main points, results, and discussion.
 - 9. **Your Analysis** - In this section, you should provide your critique of the article. Describe any problems you had with the authors' premise, methods, or conclusions. Your critique might focus on problems with the author's argument, presentation, or on information and alternatives that have been overlooked.

Session 2.2 Summary

Reflect and Review:

The focus in Session 2.2 was on the research ethics, copyrights and plagiarism, a how to critique a scientific article. An overview was given of each of these areas and key points delineated the points that are to be remembered. The information presented in Session 2.2 and the issues discussed will assist you immensely when you are called upon to undertake a research project as part of an assessment exercise for this course. Your thoughts on issues of ethical concerns that are not mentioned in this session but which you believe must be considered by researchers when undertaking psychological research are extremely relevant. Please keep your ideas as notes in your Wiki which will serve as your e-portfolio or posted in the forum as indicated in the activity tasks. The checklist of items to be included when conducting a critique of a study will be valuable when you are reviewing the literature and findings in the area of research that you are interested in undertaking.



Key Points

1. Psychology as the scientific study of human social behaviour requires the consideration of appropriate research methods and ethical guidelines.
2. We looked the UWI Open Campus's policy on plagiarism.
3. You were introduced to the Turnitin program and the rationale for its use was linked to an adherence to copyrights and to avoid plagiarism.
4. An overview was given of the experimental method, as part of the experimental design as well as simulation exercises or role playing and case studies, popular methods used in non-experimental designs.
5. There is no right or wrong methodological approach; rather the central concern should be the appropriateness of the method to the problem being investigated, the knowledge base, the resources available (including both financial and person power), the socio-cultural context, and the level of analysis, and most of all does issues like deception in research justify the means?
6. Before embarking on new research into human behaviour, psychologists are urged to review or critique the existing evidence and findings on the topic of inquiry. This will ensure that the new study is novel, the research questions are relevant, and the methods are reliable so that the results and findings have the potential to make a contribution to the discipline.

Naturalistic Observation	Observation of behaviour in natural settings	Participants behave naturally.	Researchers' expectations can influence results; little control conditions.
Case studies	In-depth study of one of a few individuals using observation, interviews or psychological testing.	In-depth information; important in the study of unusual events.	Results may not generalize beyond the case that is studied; time consuming; subject to misinterpretation.
Surveys	Interviews, questionnaires used to gather information quickly.	Accurate information about large groups; track changes.	Validity limited by sample representativeness; responses influenced by questions; social desirability.
Correlational Studies	Determination of mathematical relationship between two variables.	Assess strength and direction of relationships.	Cannot demonstrate cause and effect.

Experiments	Random assignment of participants to control and experimental groups; manipulation of independent (causal) variables.	Identification of cause and effect relationship.	Research may not generalize to non-research settings; many variables cannot be studied in experiments.
Cross-sectional designs	Participants of different ages studied at one time.	Quick access to data about age differences.	Ignores individual differences; cohort effects.
Longitudinal designs	Participants in one group studied several times.	Track developmental changes in individuals and groups.	Time consuming; findings may apply only to the group that is studied.
Sequential designs	Study that combines both longitudinal and cross-sectional design	Cross sectional and longitudinal data relevant to the same hypothesis.	Time consuming; different attrition rates across groups.

Table 2.1: Summary of Research Methods and Designs (adapted from Boyd & Bee, 2012, p. 18)

Unit Summary

Table 2.1 provides a useful summary that can be easily memorized. Underlying any discussion of psychological research method is the question, 'Can human behaviour really be understood or predicted? A Caribbean social psychologist Professor Deosaran stated, "The search for explaining human conduct finds great difficulty in clarifying the nature of the stimulus responsible for such conduct. Prediction also falls down not so much because of man's irrationality but because of the inadequacy of the methodology used... Scientific psychology had found its banner in the dominance of laboratory studies which offered refined and controlled experimental designs but in turn faced embarrassing difficulties in relating these laboratory results to people in their normal social environment." (Deosaran, 1992, p. 16) For example, if one wanted to understand how observers to a crime event become classified as 'witnesses' by the judicial system and the role and functions that they are expected to play in court during a jury trial, it is not ethical to cause harm or distress to another human being in order to create a crime and a witness or witnesses. Instead, staged or simulated events, which are high in experimental control but are limited in forensic realism, are used. Human situations are usually power-based, lodged in sociological contexts and with reciprocal interactions between the individual and the situation. You will understand the relevance and implications of these statements when reading the 10 units for this course but more importantly, this key note will strike a similar cord in your other course in the BSc. Youth Development Work.

The issues examined in Unit 2 provided a more detailed look than Unit 1 into the discipline of psychology as the scientific study of human behaviour, the research designs, methods and ethics that are associated with such a scientific inquiry and the acquisition of empirically derived facts that can withstand the test of time. As youth development workers some of the areas of interest in your work are likely to be highly sensitive areas. You would recall in Unit 1 it was stated in the Overview to PSYC 1000 'Introduction to Psychology: Social, Developmental and Abnormal' that this course was designed to offer an enhanced awareness of how research on human attitudes and behaviour can be used to generate suitable programs in ways that would be accepted by the targeted groups in society. For example, programs geared towards HIV awareness amongst the general public or the consequences of teenage pregnancies for young women. Special emphasis will be placed on the factors that cause adolescents to become at risk which in legal and psychological terms create vulnerable adults who must be protected during the research process by adherence to ethical considerations.

The text and activities in Unit 2 were designed to help you to understand the forthcoming units in this course. The activities were designed to help you to reflect on the material presented as a self-check measure of your understanding of the theories, research designs methods and concepts that constitute the framework of the discipline. We began by introducing research designs, psychological methods, and worked our way through ethical issues. Finally, a checklist of items required for a psychological critique was given so that you can easily find the salient issues when you read a published paper rather than becoming lost in the jargon used by the authors who are advanced in their academic careers and offer sophisticated analyses and explanations of the issues at hand.

In Unit 3 the focus will be on social psychology and the key theme would be motivation. The definition of motivation, theories and mechanisms of motivation, drive and motivation will be elaborated upon. We will then explore motivation within the context of issues that affect youths. The discussions will contain references to Caribbean examples and the unit material will tap into your memory for the key areas covered in Units 1 and 2. You can prepare for Unit 3 by exploring the topics to be covered at hyperlink <http://www.apa.org/topics/index.aspx>

Chapters 7-14 of the course text Boyd and Bee (2012) will also offer relevant insights into motivation across the lifespan.

References

- Bagoo, A. (2013, Oct 6). Gay marriage on the rise. Newsday. Retrieved from <http://www.newsday.co.tt/news/0,184603.html>
- Baker, S. (2013, May 31). We need to tackle mental health stigma in African and Caribbean communities. HuffPost Lifestyle. Retrieved from http://www.huffingtonpost.co.uk/sue-baker/mental-health-stigma-in-african-caribbean_b_3364647.html
- BBC News. (2004, Nov 22). HIV warning over reggae lyrics HIV warning over reggae lyrics. BBC News. Retrieved from http://news.bbc.co.uk/2/hi/uk_news/politics/4031847.stm
- Boyd, D. & Bee, H. (2012). Chapter 1 Basic Concepts and Methods. In D. Boyd & H. Bee. Lifespan Development, 6th Ed (pp. 1-22). Upper Saddle River, NJ: Pearson Education, Inc.
- Campan, D. (2009, May 20). Research Methods - Experiments & Correlations. [Video file]. Retrieved from <http://www.youtube.com/watch?v=MrBSNE-GDUI&feature=related>
- Carlson, N. (1990). Psychology, 3rd Ed. Allyn and Bacon, M.A. USA.
- Coolpsychologist. (2009, June 9). The Bystander Effect. [Video file]. Retrieved from <http://www.youtube.com/watch?v=OSsPfbup0ac&feature=related>
- Deosaran, R. (1992). Social Psychology in the Caribbean: Directions for Theory and Research. Essays in the psychology of political power, law, education, race and culture, mental health and youth. Trinidad: Longman Publishing Company.
- DevPsync. (2009, Aug 17). Research Methods in Psychology – Part 1. [Video file]. Retrieved from <http://www.youtube.com/watch?v=PrII9oErJJg&feature=related>
- DevPsync. (2009, Aug 17). Research Methods in Psychology – Part 2 [Video file]. Retrieved from <http://www.youtube.com/watch?v=5KoRfdC1l-o&feature=relmfu>
- Fastforwardprogram (2011, Oct 6). Longitudinal Study Shows Significant Fast For Word Gains Endure Over Time. [Video file]. Retrieved from <http://www.youtube.com/watch?v=aOa-A42blZg&feature=related>
- Goehner, D. (1997). An Ethical Edge in Education: Cognizance of Copyrights and Copy Wrongs' Presented at the International Conference: The Social and Moral Fabric of School Life 4 October, 1997; Seattle, Washington, USA
- Gould, J.E. (2013, Mar 29). In Honduras, fighting HIV / AIDS through music and theatre. Retrieved from <http://www.npr.org/2013/03/29/172602211/in-honduras-fighting-hiv-aids-through-music-and-theater>
- GSWfan 2009. (2010, July 31). Case study interview.mov. [Video file]. Retrieved from <http://www.youtube.com/watch?v=9U-rN2eDNZM&feature=related>

- Hanson, W.E., Creswell, J.W., Plano Clark, V.L., Petska, K.S., & Creswell, J.D. (2005). Mixed Methods Research Designs in Counseling Psychology, *Journal of Counseling Psychology* 52(2) 224–235. <http://digitalcommons.unl.edu/psychfacpub/373/> (Unit 2 reading folder)
- Headlessprofessor (2009, Aug 5). Lifespan Research: cross sectional & longitudinal. [Video file]. Retrieved from <http://www.youtube.com/watch?v=aKEiWLxQgiI>
- Keenermarc. (2009, May 21). Baby Left in car – social experiment. [Video file]. Retrieved from <http://www.youtube.com/watch?v=2OdKow7IAuw&feature=related>
- Hickling, F.W. & Paisley, V. (2012). Issues of clinical and cultural competence in Caribbean migrants, *Cultural Psychiatry*, 49(2) 223-244.
- Hogg, M.A. & Vaughn, G.M. (1998). *Social Psychology*. Europe: Prentice Hall.
- Hood, R. & Seemungal, F. (2011). Public Opinion on the Mandatory Death Penalty in Trinidad, The Death Penalty Project, London. <http://www.deathpenaltyproject.org/legal-resources/research-publications/death-penalty-survey-trinidad/>
- Howell, D.C. (1987). *Statistical Methods for Psychology* (2nd Ed.), Boston, PWS-KENT Publishing Company.
- Hutchinson, G., Simeon, D. T., Bain, B.C., & Wyatt, G.E. (2004). Social and health determinants of well being and life satisfaction in Jamaica, *The International Journal of Social Psychiatry*, 50 (1). 43-53. <http://isp.sagepub.com/content/50/1/43.full.pdf+html> (Unit 2 reading folder)
- Jamaica Observer. (2012, Dec 15). Popularity of Caribbean island soars after gay wedding. Jamaica Observer. Retrieved from http://www.jamaicaobserver.com/mobile/news/Popularity-of-Caribbean-island-soars-after-gay-wedding_13215928
- Johnson, P.B. & Malow-Iroff. (2008). *Adolescents and Risk: Making Sense of Adolescent Psychology*, CT USA: Praeger Publishers.
- MTN. (2005, Dec 12). Mental disorders in Latin America and the Caribbean Forecast Increase. Retrieved from <http://www.medicalnewstoday.com/releases/34832.php>
- Moser, C.A. & Kalton, G. (1980). *Survey Methods in Social Investigation* (2nd Ed.) London: Heinemann Educational Books Ltd.
- Office of Behavioural and Social Sciences Research (n.d.). E-source Behavioural and Social Sciences. Retrieved from <http://www.esourceresearch.org/Default.aspx?TabId=615>
- Otaru S. (2012, May 24). A brief comparison of qualitative and quantitative research methods. [Video file]. Retrieved from <http://www.youtube.com/watch?v=LYqDKEsy9gE>
- Penrod, S. (1986). *Social Psychology* (2nd Ed.). Prentice-Hall Inc.
- Sanson, A., Nicholson, J., Ungerer, J., Zubrick, S., Wilson, K., Ainley, J., Berthelsen, D., Bittman, M., Broom, D., Harrison, L., Rodgers, B., Sawyer, M., Silburn, S., Strazdins,

- L., Vimpani, G. & Wake, M. (2002). Introducing the Longitudinal Study of Australian Children, LSAC Discussion Paper No. 1, Funded by the Commonwealth Department of Family and Community Services: Publisher Australian Institute of Family Studies.
- Schallhorn, C. (2012, May 2). Longitudinal v Cross-sectional Studies. [Video file]. Retrieved from <http://www.youtube.com/watch?v=LL2CESAd8KA&feature=related>
- Seemungal, F. & Stevenage, S.V. (2002). Chapter 4 Using State of Awareness Judgements to Improve Eyewitness Confidence-Accuracy Judgements. In P. Chambres, P., M. Izaute, M. & P. Marescaux, (Eds.), *Metacognition: Process, Function and Use*. (pp. 219-231). Netherlands: Kulwer Academic/Springer Publishers
- Shodai, Otaru (2012, May 24). A brief comparison of qualitative and quantitative research methods. [Video file]. Retrieved from <http://www.youtube.com/watch?v=LYqDKEsy9gE>
- Small Island Voice St. Vincent and the Grenadines. (n.d.). Youth concerns in Bequia, St. Vincent and the Grenadines, <http://www.unesco.org/csi/smis/siv/Caribbean/svg-youth.htm>
- TheAnne55. (2009, Oct 17). Unstructured observation. [Video file]. Retrieved from <http://www.youtube.com/watch?v=2LxWdGF0yuo&feature=related>
- Thisted, R.A. (2006). The Cross-Sectional Study: Investigating Prevalence and Association, Department of Health Studies and Statistics, The University of Chicago, CRTP Track I Seminar, Autumn 2006.
- Wentworth, H. (2012). What Where? Lost in the Turnitin Vortex, http://waldenwritingcenter.blogspot.com/2012/05/put-what-where-lost-in-turnitin-vortex.html?mkt_tok=3RkMMJWWfF9wsRokuqvMZKXonjHpfsX56OwqW6K3lMI%2F0ER3fOvrPUfGjI4DS8tkI%2FqLAzICFpZo2FFRCuGHfYRJ%2FfhO

Glossary of Terms Used in Unit 2

Other free access on-line psychology dictionaries are available at the following links
<http://allpsych.com/dictionary/> and <http://www.merriam-webster.com/dictionary/psychology>

Behaviour (n.)	The physical activity of an organism, including overt bodily movement and other physiological processes. The term also denotes the specific physical responses of an organism to particular stimuli or classes of stimuli.
Case study	An in-depth examination of a single individual.
Causal (n.)	Of, relating to, or acting as something that brings about a particular result.
Causal effect (n.)	A change in a dependent variable brought about directly by an independent variable.
Cohort effects	The findings that are the result of historical factors to which one age group in a cross-sectional study has been exposed.
Concept (n.)	A mental representation, idea, or thought corresponding to a specific entity or class of entities, or the defining or prototypical features (1) of the entity or class, which may be either concrete or abstract.
Control group	The group in an experiment that receives either no special treatment or a natural treatment.
Control Variable	In experimental design, any variable apart from the independent variable that is controlled by the experimenter by being randomized, held constant, statistically controlled, or suppressed in some other way (also called a controlled variable).
Correlation	A relationship between two variables that can be expressed as a number ranging from – 1.00 to + 1.00.
Cross-sectional design	A research design in which groups of people of different ages are compared.

Dependent variable	The characteristics or behaviour that is expected to be affected by the dependent variable.
Experiment	A study that tests a causal hypothesis
External validity (n.)	The extent to which the conclusions of an empirical investigation remain true when different research methods and research participants or subjects are used.
Gap analysis	In the management literature, gap analysis is the comparison of actual performance with potential performance
Hypothesis (n.)	A tentative explanation for a phenomenon, subject to criticism by rational argument and refutation by empirical evidence.
Independent variable	The presumed causal element in an experiment.
Internal validity (n.)	The extent to which the conclusions of an empirical investigation are true within the limits of the research methods and subjects or participants used.
Laboratory observation	Observation of behaviour under controlled conditions.
Longitudinal design	A research design in which people in a single group are studied at different times in their lives.
Naturalistic observation	The process of studying people in their natural environment.
Qualitative	Concerned with meaning, rather than with measurement. The emphasis is on subjective understanding, communication, and empathy, rather than on prediction and control, and it is a tenet that there is no separate, unique, 'real' world.
Population	The entire group that is of interest to the researcher.
Random sampling	A procedure that ensures that each and every element of the population has an equal chance of being selected for the study.

Research ethics	The guidelines researchers follow to protect the rights of animal and human subjects who participate in studies.
Representative sample	A sample that has the same characteristics as the population to which a study's findings apply.
Sample	Subset of a group that is of interest to a researcher and the members of that subset that participates in a study.
Sequential design	A research design that combines cross-sectional and longitudinal examinations of development.
Stimulus (n.)	Any event, agent or influence internal or external, that excites or is capable of causing a response in any organism. Behavioural psychologists such as Frederick Skinner (1904-1990) noted that a stimulus is an event, whether physical or mental, that evokes a response. Plural stimuli.
Stratified sampling	This technique is used to increase precision in sampling. Before any sampling is undertaken the population is divided into a number of strata; for example, on the basis of age of respondent, sex of respondent, or ethnicity of respondent. A random sample is then taken from each stratum.
Survey	Data collection method in which participants respond to questions.
Theory (n.)	A proposition or set of propositions offered as a conjectured explanation for an observed phenomenon, state of affairs or event.
Triangulation	The use of a combination of research methods and techniques to the data gathering phase of a study.
Variable (n.)	Anything that is subject to variation; in psychological research, any stimulus, response, or extraneous factor that is changeable and that may influence the results of the research.