The History of Experimental Psychology's Subjects

The History of Experimental Psychology's Subjects:

Why Subjects Matter

By

Alexandra Kitty

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To Subject #6 and the defiant altruists who understand kindness and emotional rights, and wish for everyone to live the happiest lives in the world. May you be cherished and never exploited.

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PREFACE

"You can cut all the flowers but you cannot keep spring from coming."
—Pablo Neruda

"Where wisdom reigns, there is no conflict between thinking and feeling."
—Carl Gustav Jung

"If you want to know the true nature of a person, lead him onto thin ice and watch."
—Anton Puharić

My undergraduate degree is in psychology and that degree was always my loving and faithful companion that never let me down. I became a journalist who used psychology in my work, and I turned my profession into a laboratory: I conducted empirical experiments in the real world to learn how to create an empirical alternative to journalism which was applied psychology. I have written books on those results and I can confidently say that journalism and psychology were meant to go hand in hand. I always keep up with the psychology. It is a fascinating field to me. Truth, perception, and the nature of reality are crucial to understanding in both journalism and psychology, but it is psychology, not journalism, that always had that awareness in the atom of its essence. For those who seek to know the deepest truths of the universe, they will inevitably begin their journey with psychology: not by merely reading an article about a study, but by conducting studies themselves. There is no knowledge like deep knowledge.

My undergraduate thesis was in psychoacoustics: studying how our perceptions were not aligned with reality in the auditory realm. It is here where I had my first set of test subjects, and as I worked on constructing my complex experiment during the summer, I was ready to conduct my study in September so I could have access to, as my thesis advisor said, the keener subjects.

This statement was an eye-opener for me. You mean it matters *when* you conduct a study? I asked. Yes, he replied, the longer you wait, the more likely it was to get subjects who weren't as observant or keen, thereby tainting the results.

It was not the only revelation that year. A doctoral student with the same advisor let me know to cover up the television screen in the Sound Attenuating Booth so that students would not get distracted by looking at their reflections as he found out the hard way. My professor was amused, but the advice had a profound effect on me: every detail counted, but that would never be mentioned in any journal article.

In preparation for my thesis, I signed up for two experiments the year before, and the graduate student and I had interesting talks after I went through the experiment. I saw what it was like to be a subject because I ran myself as one.

I had to vet my subjects, and caught two who lied about their musical experiences, making their results unusable. My advisor ran himself as the first subject to see if there were any kinks to work out and then had me run myself as a subject so he could see my thinking. Apparently, I had peculiar results, but he quipped, that was because I knew too damn much.

Here was a simple rite of passage: writing an undergraduate thesis in a highly complex experiment, and yet the world of subjects was as equally exciting to me as what the actual results of the experiment would be.

I was in the fourth year of my studies when this happened, but suddenly, I began to think about the iconic test subjects I learned about as a psychology student: if an experiment is a form of empirical theatre, what is happening behind the scenes? Who were these people placed in ofttimes surreal circumstances?

Those thoughts always stayed with me as first a journalist who saw her calling as applied psychology, and then as an author whose work – whether I wrote about journalism or the arts – had psychology as the backbone.

This book is a different kind of journey: it is one written by someone who took the laboratory out on the road, and now has arrived with something different to deliver. As a journalist, I learned how important those psychology experiments were: from altering memories with loaded questions, to how close I sat across from someone I was interviewing: everything mattered.

In journalism, there were subjects, but they are known as sources and interviewees. When I dealt with these people, my lessons as an undergraduate psych student gave me more potent insights over time.

What you are about to read is a book about those sources and interviewees of psychology: the test subject. We will examine some of the most famous subjects, and look at them with a different lens. This book is a form of emotional empiricism: we can humanize and empathize to gain a different set of data points. We will see why some subjects conformed to a thesis and became iconic, while others became iconic because they defied it.

However, this is a gateway book to the topic and is not meant to catalogue every study or sub-discipline in psychology and the behavioural sciences. This is a roadmap to looking at subjects in a different light, meaning that you, the reader, can continue this journey as you open new paths with the new scaffolding this book presents to you. This book is not meant to be an exhaustive odyssey, as it would take hundreds of volumes to begin to complete that task. Aspects were chosen on a number of factors, and exclusion does not imply the study is less important than the ones chronicled here.

One final note: as with the rest of my books, I do not write or pander to rote binary thinkers as they are already overserved in the marketplace as they are the easiest to placate and predict. My work is for academically adventurous multi-literate individuals who can see the big picture as much as the nuance and enjoy a complex psychological challenge to stimulate them rather than validate their thinking. My books have always been carefully crafted to encourage and inspire emotional and primal thinkers, while deliberately leaving a bitter taste for analytical thinkers whose hubris and ignorance of other literacies keep them perpetually entrenched in contrived and stagnate imaginary rules and pecking orders.

I hope you enjoy this book as much as I enjoyed writing it. This is a concept that stayed with me for three decades and will stay with me decades more. No matter how many insights one experiment gives us, if we look from one angle more, there are slumbering worlds of revelations waiting to be unleashed.

—Alexandra Kitty

A Note About Reading This Book

Before we begin our journey, it is important to define what we mean by "subject." For the purposes of this book, we will look at two groups of subjects: those who are under observation in an experimental study, and those who are under observation by a clinical psychologist or psychiatrist. The former individuals or groups are placed in a manipulated environment, often a laboratory, and their reactions are measured empirically, while the latter receive counselling or treatment and changes in their behaviour and thinking are also empirically measured to see if there is any improvement in their condition. While a psychological study should adhere to the Scientific Method, many do not; however, the role of individuals under study is still defined as subjects.

CHAPTER ONE

THE HIDDEN SIDE OF THE EQUATION

There could be no empirically-based psychological knowledge without experiments or observation. There can be no experiments or observations without subjects. Animal subjects are an important part of the scaffolding of the profession, but it is human subjects whose reactions and responses build the foundation of knowledge in the profession. Psychology is, after all, the study of people the way journalism is the real-world application of the same basic essence. What makes us tick? That is the driving question that guides psychology. It is a simple and basic question, yet every day, new research and studies are created for the reason we don't have a full answer yet.

When we think about the history of experimental or clinical psychology, we think about the psychologists. Sigmund Freud and Carl Jung are the names the uninitiated think of first. A few more will think of Carl Rogers, Abraham Maslow, Ivan Pavlov, Daniel Kahneman, or B.F. Skinner. For those in the profession, Wilhelm Wundt, Albert Sidney Beckham, Edward Thorndike, Donald Hebb, Elizabeth Loftus, Martin Seligman, Kenneth Bancroft Clark, and Mamie Phipps Clark are mundane names, even if their contributions and breakthroughs were extraordinary. They are rightfully perceived as important as it is their work, ingenuity, and wisdom that opened new doors to both the mind and the brain. They are one side of the equation of the atom of the experiment: the experimenter.

However, what we often forget what lies on the other side of that equation: the subjects. These are, for the most part, anonymous players who either agree to an experiment or are unaware that they are part of one. Sometimes they are led to believe that confederates are also subjects or bystanders. They agree to take part in an experiment with one set of expectations, only to be faced with a surreal piece of psychological theatre. It is their reactions and responses that are the most important factor in the actual experiment.

And yet we know so little about them.

We look at their decisions and what those decisions mean. Those are the results. Who are these players on an emotional level? They often share their deepest wounds with an experimenter or agree to partake in extraordinary experiments in the name of the greater good. Some are students looking for extra credit, or those who are suffering extreme trauma and wish to share that trauma in order to find a solution. These are a varied and textured unspoken community of players, and without whom we would not understand the basic mechanics of human behaviour and thinking.

And their responses are a part of academic history. Some faces are prominent in every first-year psychology textbook in countless countries for decades, yet we do not know the person's name or whatever happened to them. How could we not? Many made students laugh, enraged, and even weep; what became of these subjects is anyone's guess. Some made their mark being complacent to a disturbing degree; others because they were the outlier who refused to conform to an experimenter's pessimistic view of human nature. Some subjects were triumphs, while others were tragic. Subjects are rich fodder for examination, yet the confines of the experiment seemingly shut off any other musings of those fleeting figures on the other side of the equation.

We hungrily devour any tidbit of iconic psychologists: Carl Jung's foray into alchemy – *The Red Book* – is still a pricey tome that made a splash when it was published decades after it was written, but what of those people Jung encountered that served as an inspiration to delve into the emotionally philosophical realm? It is a mystery that will forever elude us because we rarely stop to think about the fleeting and unspoken group of people who were at some point in the lives a psychologist's subject.

In a real way, subjects are the psychologist's muse. We may not see it when we strictly look through an analytical lens, but when we alter our perceptions through an emotional lens, new worlds open up to us.

And there is no shortage of subjects who surprised us, shocked us, inspired us, and even disturbed us. For instance, Albert Bandura's iconic Bobo Doll Experiment showed us unequivocally that children could turn violent by the mere observance of an adult displaying the same behaviour. Children in the pictures punched a Bobo Doll when they witnessed an adult doing the same. The academic implications were obvious: children witnessing violence on television or at home would more likely follow the same rote binary path.

But what about those children in the experiment? What do we know of them? What are we to make of them? Boy, girl, it did not matter: what they saw they emulated. Did they ever discover their place in experimental psychological history? What are their thoughts and feelings? What do they make of it?

There is a slumbering world that, almost a century and a half later, still sleeps. Who is Subject #6 in Solomon Asch's conformity experiment? Who were those people who chose to give electric shocks to a seemingly dead man in Stanley Milgram's experiment? What did they think about their actions? Were they bothered by it? Forever justifying it? Were they altered by cognitive dissonance or unperturbed by their motiveless drive to obey authority?

Subjects come from all walks of life. Some are recruited for their musical or artistic abilities, while others for their mundaneness. As psychologists study every facet of human behaviour, there is no shortage of experiments being conducted globally. We can extrapolate much from using metanalysis, looking at subjects' behaviours across time and place. Ortgeist, zeitgeist, it doesn't matter: we understand the output of the subjects.

But there is a world overlooked: the one of the actual subjects. A subject is but a mere grain, but it is a crucial element worth exploring: both as a concept and in its more mundane reality. In the end, these are people.

Philip Zimbardo's prison experiment had highly intelligent students reduced to primal abusers and victims so quickly that the experiment was halted early. Yet, there are times when subjects touch our hearts rather than chill them. Psychologist Lawrence LeShan recounted one five-year-old girl given an IQ test in his book The Dilemma of Psychology:

> A five-year-old child was given an IQ test in school. At home afterward, her mother asked her how it had gone. "Oh," she said, "it was easy except for one question that was too hard. The teacher told me to draw a lion between the picture of a table and the picture of a chair. I can't draw a lion so I drew a daisy." The mother said, "I think she meant draw a line." "Oh, no," replied the five-year-old, "that would have been too easy."

Subjects can surprise even the savviest veteran psychologists and change their views of humanity one way or another. They can challenge an experimenter unknowingly, and yet it is their response that brings the most profound of revelations. Without subjects, there can be no data for psychologists, and yet even though there have been countless subjects, we

know so very little about them. The label confines our thinking, and yet there is a rich and textured world to explore.

Before we begin our journey, it is helpful to understand the history of human subjects in psychology as well as the scaffolding for using subjects in the profession. The next two chapters look at each aspect in turn.

CHAPTER TWO

THE HISTORY OF SUBJECTS

Human subjects in psychology are the unsung and mostly unpaid and anonymous individuals who have helped our understanding of the human mind and brain and often seem as if they are the disposable tissue that can be forgotten the moment the experiment is completed. We know little else about them if they are subjects in an experimental study, but when there is a clinical case study, we may know more about them (age, sex, occupation, psychological issue, and treatment), but barely enough to understand these individuals as anything else but in need of psychiatric intervention. Surprisingly, however, human subjects predate animal subjects, and psychology's roots firmly began in trying to create a Rosetta Stone in understanding human behaviour. Animal subjects in psychological experiments would come several years later: Russian physiologist Ivan Pavlov studied the primal responses of dogs; British surgeon and theologian Charles Bell studied rabbits, while American psychologists John B. Watson and Edward Tolman studied rats. Birds and primates would be folded into the experimental repertoire by the 20th century with Robert Yerkes and B.F. Skinner being the most high-profile in the field. While animal subjects continue to be used, it is interesting that they did not come into play until after humans were the inaugural subjects.

It was not so much to expand knowledge to animals than to conduct the more *hardcore* variety of experiments that humans would not want to inflict upon themselves; however, over the decades some experiments would be harsh: either because a psychologist wanted to discover the darkest truths of human reality – or because of clandestine institutions with their own peculiar logic of how they would best manipulate and control average citizens. Even here, the results are always a mixed bag, and rarely ever proven to describe the behaviour of all citizens out in the real world.

In modern times, it is posh to speak about general well-known theories of psychology, even if the speakers never had a degree in it and have little knowledge or understanding of the real and deeper meaning, though, it should be noted that one of the most popular first-year courses in

universities is psychology. If pressed to cite a study or explain the shortcomings of the theories, most would not be able to do so or know there are various *schools* of thought.

For instance, one highly-cited 1956 journal article from psychologist George Miller stated that there was an upper limit to short-term memory: "7 plus or minus 2" as the limit to short-term human memory. Many psychologists and laypeople cite this as fact; however, Miller did not conduct a study, and, eventually, the decree was *challenged.* In fact, Miller's article in *Psychological Review* had a distinct *whimsical* air to it:

> My problem is that I have been persecuted by an integer. For seven years this number has followed me around, has intruded in my most private data, and has assaulted me from the pages of our most public journals. This number assumes a variety of disguises, being some- times a little larger and sometimes a little smaller than usual, but never changing so much as to be unrecognizable. The persistence with which this number plagues me is far more than a random accident. There is, to quote a famous senator, a design behind it, some pattern governing its appearances. Either there really is something unusual about the number or else I am suffering from delusions of persecution.

The non-academic tone was a sign that all wasn't what it first appeared. There is much we do not know about the evolution of experimental subjects, making it difficult to gauge the efficacy of the practice or know if there are other ways to do it. Even psychologists will take theories as truth when there is a shallow appreciation of the human factor of subjects.

However, this void is not universal in the countless offshoots of psychology. For instance, jury psychologists are keenly aware of the problems of their subdiscipline: how does one create the conditions of a real jury with real consequences? Any study with a mock jury can never recreate the same critical atmosphere or consequences of a jury undergoing deliberations with life-or-death consequences, and this void has prevented much progress and credibility with those in the legal system. When subjects cannot be put through the same rigours as those actually experiencing the reality in question, then the study is said to lack ecological validity. Here, it is keenly understood that the laboratory can have serious shortcomings which cannot tap into subjects' organic reactions and understand the mechanisms of either the thought processes of the mind or the neurobiological triggers of the brain.

What should be clear from the onset is that psychology – like Christianity – has countless offshoots. It is the vaguest of disciplines. There is experimental psychology, jury psychology, quantitative psychology, sport psychology, business psychology, abnormal psychology, child (or developmental) psychology, neuropsychology, cognitive psychology, animal psychology, clinical psychology, behavioural psychology, social psychology, forensic psychology, and applied psychology, to name but a few. Psychology is a profession which can fuse with any other discipline to create a new one. The unity of the profession is a mirage, and even in each subdiscipline, there are competing schools of thought. Yet despite the ingrained plurality, the common thread is the relationship between the experimenter (the authority) and the experimental recruits (the subjugated).

The dynamic is viewed through the eyes of the authority who, ironically, has a *question,* and yet it is within the subjects where the *answer* resides. This relationship is taken for granted and rarely explored. More interestingly, the origins of the practice give us very few clues to its evolution, but it is the measures codified later on which give some insights. For instance, the Nuremberg Code in 1947 began to take the relationship seriously as fascists during the Second World War thought nothing of torturing innocents in the name of science. It was as late as 1964 when the Declaration of Helsinki also took steps to codify ethics into the relationship, the Belmont Report did the same in 1978, and in 2010 when the US's National Institute of Justice made the recommendation for human subject *rights*. While these works apply mostly to medical test subjects, these guidelines also encompass social science subjects as well.

The Nuremberg Code established conditions for human subject experimentation:

> The voluntary consent of the human subject is absolutely essential. This means that the person involved should have legal capacity to give consent; should be so situated as to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, over-reaching, or other ulterior form of constraint or coercion; and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision.

The purpose was to ensure that test subjects were not harmed in the process in any way:

> The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.
>
> …During the course of the experiment, the human subject should be at liberty to bring the experiment to an end if he has reached the physical or mental state where continuation of the experiment seems to him to be impossible.
>
> During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required of him that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.

The Declaration of Helsinki continued the codification and was also geared toward both medical and social science research:

> Medical research is subject to ethical standards that promote and ensure respect for all human subjects and protect their health and rights.
>
> …While the primary purpose of medical research is to generate new knowledge, this goal can never take precedence over the rights and interests of individual research subjects.
>
> …It is the duty of physicians who are involved in medical research to protect the life, health, dignity, integrity, right to self-determination, privacy, and confidentiality of personal information of research subjects. The responsibility for the protection of research subjects must always rest with the physician or other health care professionals and never with the research subjects, even though they have given consent.
>
> ... Groups that are underrepresented in medical research should be provided appropriate access to participation in research.

The Belmont Report also continued to refine definitions, and while many applaud its scope, there are those who believe these guidelines may no longer be sufficient. However, the report has served as a reliable guide for researchers for decades:

> Persons are treated in an ethical manner not only by respecting their decisions and protecting them from harm but also by making efforts to secure their well-being. Such treatment falls under the principle of beneficence. The term “beneficence” is often understood to cover acts of kindness or charity that go beyond strict obligation. In this document, beneficence is understood in a stronger sense, as an obligation. Two general rules have been formulated as complementary expressions of beneficent

> actions in this sense: (1) do not harm and (2) maximize possible benefits and minimize possible harms.
>
> The Hippocratic maxim "do no harm" has long been a fundamental principle of medical ethics. Claude Bernard extended it to the realm of research, saying that one should not injure one person regardless of the benefits that might come to others. However, even avoiding harm requires learning what is harmful; and, in the process of obtaining this information, persons may be exposed to the risk of harm. Further, the Hippocratic Oath requires physicians to benefit their patients "according to their best judgment." Learning what will benefit may require exposing persons to risk. The problem posed by these imperatives is to decide when it is justifiable to seek certain benefits despite the risks involved, and when the benefits should be foregone because of the risks.

The US National Institute of Justice determines scientific funding based on the ethical considerations encompassed in the other aforementioned reports:

> The Common Rule represents the culmination of more than 40 years of development and discussion on the underlying ethical principles and guidelines for conducting research using human subjects, beginning with the Nuremberg Code in 1947. Through the years, several international and national commissions have contributed valuable concepts and approaches to the protection of human research subjects. One of these, the Belmont Report published in 1978, described the three ethical principles on which the procedural requirements of the Common Rule are based. These principles are respect for persons, beneficence, and justice.

Yet the use of subjects predates all of these documents and decrees. How experimental subjects came to be and their evolution in psychology, both clinical and experimental is well-established from the side of the psychologists and their theories, but not from the other end of the equation with the actual subjects themselves. How were subjects chosen? What was their motivation for agreeing to become a subject? What did they think about the experience? Would they have done things differently? Did they talk to one another after the experiments or did they even know who else was participating? The subjects back then held many clues and insights, and yet, we know nothing about them or their perceptions of the experience. After all, it is the psychologists who are organised as an entity, and the subjects are not: they merely respond to the smaller group's request for participation.

Psychology is the offshoot of philosophy and the attempt to make the answers to philosophical questions empirical. It is with this scaffolding in mind that psychology began as the shift from one discipline into a new one

where people's behaviours weren't just casually observed but measured and tested. Psychologist Wilhelm Wundt was the first psychologist to carry out an actual experiment in 1862, and created his own lab by 1879 at the University of Leipzig: he was also the first to use human beings as experimental subjects; however, American scholar William James independently opened his psychology laboratory at Harvard in the same year, though James's lab was used for teaching rather than experimentation. It would be 1883 when Wundt's student G. Stanley Hall created the US's first experimental psychology laboratory at Johns Hopkins University.

These laboratories would be considered ground-breaking and illustrious beginnings for the profession. Wundt was a prolific writer and experimenter and is considered the "father" of experimental psychology. There is much literature on the man and his extensive work. The first psychology experiment that took place would also be considered significant to the profession as Barrett noted in 2009:

> In 1862, Wilhelm Wundt tried to measure the speed of thought by tracking the discrepancy between the actual and perceived position of a swinging pendulum. By 1879, he had invented the reaction time experiment to measure the speed of perception by presenting participants with a tone or light of a particular colour and measuring their latency to press or release a button in response. With these first experiments in psychology, Wundt's goal was to identify and measure the atoms of the mind—the most elemental processes that are the basic ingredients of mental life. Wundt's method remains a standard in the science of psychology today: Researchers carefully observe something physical (be it a set of muscle movements such as in reaction time, a verbal response such as a self-reported experience, or a bodily response such as changes in heart rate) and record variations in these measurements across time or context. Somehow, we figure out which part of the observed variation is signal (the variation that is meaningful to us and that we want to explain) and which is noise (the variation we don't care about). We then use the physical to make inferences about the mental.

There is no shortage of books and articles on the experimental trailblazer of the discipline. We know much about Wundt – what is not known is those who participated in those studies, though it is not a stretch to assume that these were white males, and most likely, students. That side of the equation provides no clues, only recorded responses and their patterns.

Yet the notions of the structure of experiments predated even Wundt and James: German scholar and physicist Gustav Fechner published the first book on the subject *Elemente der Psychophysik* (Elements of Psychophysics) in 1860. He had conducted experiments in psychophysics and laid the

groundwork. Wundt would pick up the mantle of experimental psychology several years later.

But how subjects thought about their role, we know nothing. Were they excited to be part of something so ground-breaking? How did they come to join an experiment and why? What distracted them during the experiment? Did they know the experimenter? Did any extraneous variables creep in? These are critical questions, but no one thought to record the human factor of those experiments: not Fechner, and not Wundt.

Because of the anonymous nature of subjects, much of history has been forever lost. That part of the equation is still, almost a century and a half later, permanently vanished in the sands of time yet the methods are taken for granted.

Who was the very first human subject? We will never know. Someone so ground-breaking and historically significant has been lost to us, but not every subject became an anonymous unit. Yet over the years, experiments began to change and reflect the times, and it is time to take a quick detour in the mechanics of an experiment to understand how subjects are treated and what they experience on the most basic level.

CHAPTER THREE

THE WORLD OF SUBJECTS

Before we begin to look at the invisible landscape of psychological subjects, it is helpful to have a quick primer on how subjects can be chosen, the process of being a subject, and experimenter design (control group, placebos, double-blind, randomization, confederates, etc.). While the nature and the mechanics of experiments vastly differ, a good study will have a particular scaffolding. Yet it should be noted that despite the rich texture, diversity, and plurality of experiments, more studies are poorly designed than properly so. No matter how ingenious an experiment is in context, if its structure is vulnerable, it is an effort wasted.

Yet even here, psychologists cannot agree on the overall efficacy of experiments. In one highly-cited 2015 study on the replicability of experiments (i.e., can other researchers get the same results if they conduct the same study under the same conditions), over half of the original studies' outcomes could not be reproduced. Then a year later, Harvard professors Daniel Gilbert and Gary King, quibbled with the grim assessment by claiming the study of studies was flawed; however, their assurances did not seem to put the debate to rest as later studies aligned with the first study's assessment, nor was the issue a new one. Experimental design, in theory, is not always used in practice, or as John P. A. Ioannidis shockingly claimed in 2005 about all scientific research, "It can be proven that most claimed research findings are false."

With faulty calibration and academic debates, what gets lost in the discussion is the use of people in experiments. Regardless of how well – or poorly – a study is constructed, there will still be a never-ending stream of people under study. The first orienting question for us to consider is what categories of basic psychological experiments require human participation. Then we can ask how subjects are recruited, and finally, what makes a sound and solid experiment. By knowing these three factors, we can begin to understand the role of subjects in the process. While it often seems in that the theatre of psychological experiments, subjects seem to be no more than extras in a production, or more cynically, cannon fodder.

How subjects are chosen in experiments widely varies, depending on several factors, particularly if the psychologists are seeking average citizens to know about how "normal" people think and act, or want to look at a particular subset: from professional musicians to those suffering from schizophrenia to know how a certain demographic or psychographic function. The former subjects are "average" or general, while the latter are special and/or specific. Average subjects are usually (but not always) first-year students who are taking a psychology course and wish to replace a written assignment with participation in an experiment. In this case, the experiments may be conducted by faculty, doctoral, graduate, or even undergraduate students who are working on their final year thesis. Not all studies are published, but they will essentially use the same pool of potential subjects. It is not as if the faculty have dibs on the most select subjects: it is a roulette wheel of sorts where who signs up determines who studies them.

However, there will often be parameters: subjects may need to be a certain age, race, or gender. They may require to have certain abilities or have the *absence* of certain abilities, from eyesight to musical or athletic capacities. Experimenters will be clear about whom they require to be a subject, and often, must find ways to vet them in case a subject tries to deceive the psychologist by ignoring the parameters in order to get credit for a conveniently scheduled study.

Experimental Versus Clinical Subjects

In essence, there are two kinds of basic studies where human subjects are required: experimental psychological studies, and clinical studies. While there is overlap and debate on many levels, we can use a rough guide to understand how each category operates. Each setting determines the kinds of studies being constructed and their overall goal.

Experimental subjects generally seek to understand people in more general terms to ascertain universal truths of human behaviour. In that, it is the reason why first-year university students who have taken a psychology elective are common fodder. It is not just proximity and ease of obtaining a large pool of experimentally naïve individuals, but because these subjects are defined by their absolute averageness. First-year students more closely align with the general population than those with a graduate degree. Many undergraduates will drop out and their intelligence and persistence will vary more than the fourth-year undergraduate students.

In many cases, particularly pre-Internet and app days, subjects were usually students taking a psychology elective who would fill out a sign-up sheet on a bulletin board in a hallway. These subjects would usually substitute becoming a guinea pig for a written assignment, and would not get paid.

Today, the process has changed very little: the bulk of subjects are psychology students, they may or may not receive some payment or raffle ticket, and they may still be swapping their written assignment for becoming a test subject in an experiment. The difference now is they will sign up online through an "online scheduling system" called SONA, which almost a thousand universities use. The University of Oklahoma described SONA this way:

> [SONA] is a research participation and management tool that connects undergraduate students to faculty and graduate students who need participants for their research and dissertation studies. This online system allows researchers to post studies for recruitment, instructors to encourage student participation in research activities and students to sign up to participate in open research studies. The system has elements to assist the researcher with human subject protection and Institutional Review Board (IRB) requirements, keep track of participation and send out confidential reminder notices. It is a great opportunity for undergraduate students to gain introductory research experience. Many instructors have a research component as part of their course or offer extra credit for students who complete research studies using the Sona System.

While the process has been largely automatized, it still requires the subject to take the initiative to approach the experimenter to express interest. While subjects may come from other venues or even be observed unobtrusively, the bulk of subjects come from responses to calls that have, for the most part, become uniform and predictable. The University of Western Ontario described the process in a straightforward manner:

> When you log in to SONA for the first time you will need to complete the mandatory prescreen questionnaire which includes some basic demographic questions. Once you fill out the prescreen, the list of studies currently seeking participants will be filtered so that you are less likely to see studies for which you don't qualify. For example, right-handers will not see studies listed that are seeking only left-handed participants. This will help keep your list of potential studies more manageable. However, some studies have requirements that are not part of the prescreen, so do look carefully at the requirements for a study before signing up.

Not all universities use SONA, however. For instance, the University of Toronto has its own cleverly titled *PsψchED* where students can sign up for

various experiments, though the process is the same as SONA. The studies are for credit, but non-students can also sign up through this system. Payment is nominal, usually fifty dollars or under, with some merely offering a raffle ticket or an Amazon gift card. It is not a way to make extra money in your spare time.

The kinds of experiments that are typical in modern times are diverse and often don't seem as fascinating as the iconic experiments which bedazzled students in the first place. It is no longer a form of secret melodrama theatre. The studies are less opaque and details are spelled out clearly. For example, the University of Toronto was looking for eager students to participate in this March 2023 study:

> **Voice Identification Study (for native speakers of English)**
>
> Description
>
> This 2-day study requires headphones and includes an in-person AND online component. Part 1 and 2 (~45min) will take place on Day 1 IN-PERSON and Part 3 (~30min) will take place on Day 2 ONLINE. In Part 1, you will hear and identify voices. In Part 2, you will transcribe speech. In Part 3, you will judge and rate speakers across different characteristics (e.g., how young does this speaker sound?). You will come up with your own descriptions at the end. Participants must complete the entire experiment to receive credit for participation. Please confirm your eligibility before signing up! A researcher will provide you with further instructions within 5 days.
>
> Restrictions/
> Prerequisites
>
> (1) 18-40 years old, (2) Learned English in Canada (or another English-speaking country) before 6, (3) You use English > 80% in daily life, (4) NO routine exposure to Mandarin-accented OR Japanese-accented English, (5) Currently reside in Ontario, Canada
>
> Compensation
>
> 1.5 Credits or $15 Amazon Card
>
> Duration
>
> 1 hour 15 mins - 1 hour 44 mins

On the other hand, one University of British Columbia study conducted in February 2023, was more interested in sight than sound:

An Online Meeting Tool for Facial Expressions and Body Language (Online Study)

Description: We're looking for full-time workers (including graduate students) who regularly attend online meetings with video for work and are interested in trying out a new meeting tool. The tool gives you feedback on your facial expressions and body language through a glanceable display during online meetings by analyzing your video feed. You must use macOS to install the meeting tool to participate in the study. In the study, you will install and use the tool with your regular online work meetings (you are free to skip using the tool for some meetings), complete three questionnaires, and answer questions about your experience after the study. This study is a collaboration between researchers from the University of British Columbia (UBC) and the University of Zurich (UZH) in Switzerland.

Eligibility:

- Works full-time, including research-based graduate students.
- Attend at least 4-6 online meetings for work weekly with video on.
- Are willing and able to install and use the meeting tool at your workplace.
- Are using macOS 10.15 (Catalina) or higher.
- Have and use a webcam (built-in webcam is fine, such as those on MacBooks).
- Have ~2 GB of free/unused RAM/memory.

Reimbursement/Time: The study will take an additional 3-4 hours (on top of your regular meeting time) over at most 4 weeks. You will (1) receive the CAD equivalent of 40 CHF (approximately 50-60 CAD) in an Amazon gift card and (2) be entered into a raffle to win 1 of 3 Apple Watches (series 3/4) or a 200 CHF gift card (or CAD equivalent) as study compensation.

Study End Date: Ongoing. Posted 2023 Feb 16

The methods of studying subjects have changed over the decades with increasingly stringent rules, meaning the pool of what can be studied and how becomes shallower over time, on the one hand, but with a shift in focus away from psychology's more emotional and philosophical roots of the mind: the assumption is the alignment to more "scientific" considerations of the brain can make up the deficits. What is interesting to note is that the process seems to exude an aura of tight control with an air of authority. For example, Washington State University made this assurance on its website:

> The Psychology Human Subject Pool (Subject Pool) provides a system for coordinating enrollment in Department research involving human subjects.

> The Subject Pool is used for most, but not all, human research. The Subject Pool is restricted to research that is supervised by [the] Psychology faculty.

The assurances were reinforced with the use of SONA:

> Information in the Subject Pool is based on proprietary SONA software. SONA is the most popular commercially available software for human subject information and is in use at over 900 universities.
>
> SONA is compliant with current research regulations, and provides for SSL encryption and anonymous personal identification (ID) codes. The SONA system has wide latitude for configuration by users, providing system wide settings, specifiable permission roles for researchers, non-research credit management, and email notifications for researcher and subjects.

The guidelines are clear on how subjects tend to be stratified into certain acceptable categories:

> The Subject Pool involves only adult volunteers who are students in Psychology, or other competent adults who request to be added to the system.
>
> Volunteers may participate in research in order to (1) earn research experience credits in Psychology, (2) earn extra credit in Psychology classes, (3) earn money or objects of value for their participation, or any combination of these three.

Finally, potential subjects are assured they have not entered a form of vassalage:

> All human subject research in the Department of Psychology is voluntary. No one is required to participate in any research project. If you are an adult and wish to participate in research, you will be asked to give your explicit consent to participate after potential risks and benefits have been explained to you. You may stop participation in a study at any time without penalty or prejudice. If you have begun a research study you may stop answering questions, stop performing research procedures, or leave the study site, at any time. If you discontinue the study before it is completed, you will receive credit or payment corresponding to the amount of time that you did participate.
>
> All human subject research at WSU is governed by Federal statutes and State law. Review, evaluation, and approval of human subject research is the responsibility of the WSU Institutional Review Board (IRB).

Despite the push for uniformity, not all universities behave alike. Interestingly enough, while many Canadian universities advertise their various experiments

online where anyone can see them, US universities will allow access only to their registered students or those employed by the university, making the process far less transparent to outsiders who wish to gain insight from the inner workings of the profession.

On the other hand, clinical studies tend to look at those with psychological problems, from depression to schizophrenia to Tourette's to those with learning disabilities. The point is to understand how disorders work and how best to treat them. While experimental studies tend to be general in scope, clinical ones tend to be more specific. Clinical studies will seek those who are afflicted with a particular problem and encourage the individual to participate.

Here, there will be skewing: those who decline or are undiagnosed will be left out. Women are overrepresented in clinical settings for a variety of reasons, from being more open and willing to seek treatment than men, and that often, women are placed in a hospital setting either against their will, or they lack the financial resources to be able to hide their problem.

There will be another sort of skewing: for instance, people who suffer from paranoia or paranoid schizophrenia are too distrustful to agree to seek help or agree to participate in a clinical study in the first place.

Finally, many of those who have disorders may be homeless or incarcerated, meaning access may be impeded. Clinical studies have their own obstacles and confines and it is not as simple to find subjects willing or even able to be accessible. While those in STEM may fancy speaking with an air of definitiveness and authority, the truth is that many studies have unavoidable flaws and their credibility may be based on mere wisps.

Experimental Design

Finally, the basic structure of a good (i.e., reliable, valid, and useful) study can be identified with some benchmarks. It is beyond the scope of this book to list them in detail, but the basics of a sound study can be identified with the following standards:

Control group: The control group provides a standard where each experimental group can be compared and contrasted. The control should be identical to all other groups except in one way. The control group should not have the factor under study while the experimental group does. There will be at least two groups under study: one which interacts or is exposed to