**Experimental Design**

Probably the commonest way to design an experiment in psychology is to divide the participants into two groups, the [experimental](https://www.simplypsychology.org/control-and-experimental-group-differences.html) group and the control group, and then introduce a change to the experimental group, not the control group.

**Step 1: (Choose Variable)**

**1) Independent Variable:**

Computing technology advancement (e.g., hardware improvements,software advancement)

1. **Dependent Variable:**

Impact on various sectors(e.g., increase productivity levels in different sectors, increase economic growth in various sectors)

In this study, we would analyze how changes in computing technology (an independent variable) lead to various affects or impacts on the various sector (a dependent variable).

For Example:

We can say that better learning performance, problem solving skills, global opportunities in various fields can also be enhanced by the development of computing technology, as well as negative psychological consequences, less diversity, mental health challenges can also be enhanced by same computing technology.

So we conclude that the dependent variable depends on the independent variable.

**3) Control Variable:** It is the variable that is kept constant or controlled in order to isolate the relationship between the independent and dependent variables.

**i) Time Period:**You may want to control for the specific time period during which you are examining the impact of computing evolution.

**ii) Institutional Differences:**If you are comparing different institutions or organizations, you might want to control for variables such as size, location, or mission, as these factors can affect their response to computing evolution.

**iii) Policy Changes:** If there have been significant policy changes related to Education, Health care, Finance, Manufacturing or Government, these could influence on various sectors independently of computing evolution, so controlling them may be important.

**Step 2: (Select Your Participant)**

In this step, we define our target population (the group you want to study) and determine how we will select our participants (a sample). A sample represents a population.

**Target Population:** All institutions (such as Information Technology (IT), Finance, Health care, Education, Legal, Engineering, Business and Management, Media and Entertainment etc) and individuals involved in various sectors.

**Random sampling:**

**Education sector:**

**Universities:**

Public and private universities of all sizes

Faculty members teach and conduct research.

Students pursuing undergraduate, graduate, and doctoral degrees

Academic administrators managing university operators

**Collages:**

Science collages, liberal arts colleges, and technical collages

Professors and instructors facilitating diverse educational programs

Students seeking various educational pathways and certifications

Academic administrators managing college operators

**Research Organization:**

Independent research institutes and laboratories

Researchers and scientists conducting specialized studies

Research support staff includes laboratory technicians and project managers.

**Individuals involved in academic sectors:**

Faculty Members: Professors,lecturers, adjunct faculty, and teaching assistants

Students: undergraduates, graduates,  postgraduates, and doctoral candidates

Researchers: professionals dedicated to advancing knowledge through research

Administrators: individuals responsible for managing academic institutions

**Information technology sector:**

Product companies, services companies and in-house IT departments.

Also included are directors, managers and individual contributors (software developers, network engineers, cyber security specialists, IT managers, etc.)

**Health-care Sectors:**

These include hospital administrators, specialist surgeons, silent doctors, nurses and physician assistants, medical students, etc.

**Legal Sectors:**

Includes lawyers, paralegals, judges, legal consultants,court reporters and Legal Aid Counselors etc.

**Media and Entertainment Sector:**

Includes Film Directors, Journalists, Video Game Developers,Digital Marketing Specialists etc.

**Business Management Sectors:**

Includes Business Analysts, Project Managers,CEOs and Executives,Human Resources Professionals etc.

These are just sample sectors, and each of them can be further subdivided into various specialized roles and professions. A study on computing evolution's impact on these sectors would involve examining how technology advancements have affected the work, practices, and outcomes within these professional fields

**Step 3: (Select Your Design)**

**Between Subject Design:**

**Randomized Group-design:**

Randomly assign participants from each institution to one of three groups: communication group, teaching group, or research group.

Each group will have an equal number of participants from different institutions to minimize biases.

1. **Experimental Group:** Participants in this group receive interventions related to computing technology, focusing on improving communication, teaching, or research, problem solving skill in these sectors. The goal is to assess the impact of these interventions on learning efficiency, accessibility, and psychological well-being .

**ii) Control Group:** Participants in this group continue with their usual activities without any specific technology-related interventions.

The study found that the experimental groups, which received technology interventions in communication, teaching, or research, generally reported improvements in learning efficiency and accessibility. However, there were also instances of digital addiction and information overload, leading to potential negative psychological consequences. The control group's outcomes remained relatively stable. We can say that those who had no computing evolution in any of the factors reported lower job satisfaction, traditional learning environments, and non-tech-related psychological well-being as compare experimental group.