Bloom Your Career

Bloom Your Life

Advanced Business Research Methodology

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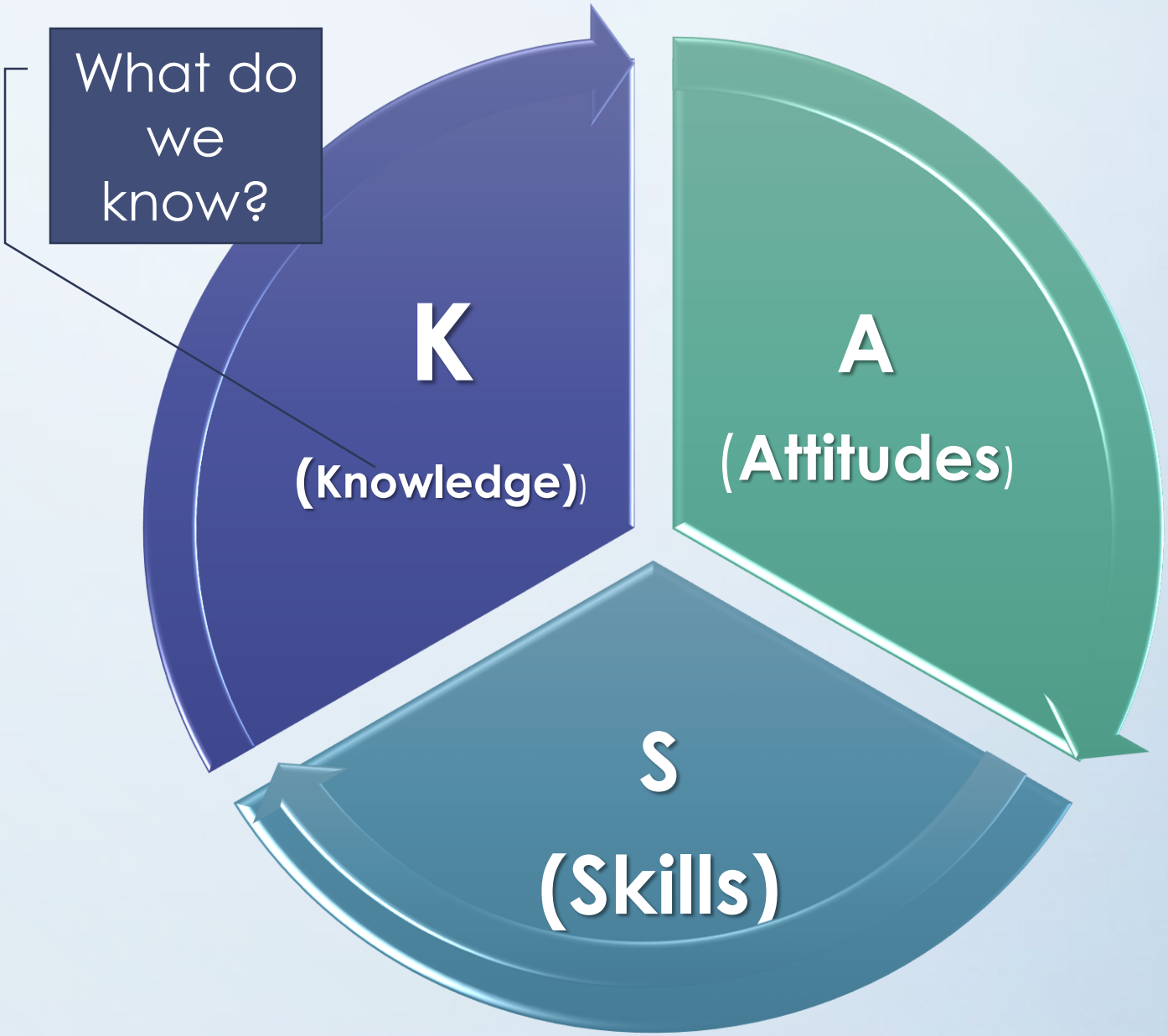
Course Objectives

- Research and the Research Process
- Critical Appraisal of Literature Review
- Research Methods (Quantitative and Qualitative)
- Research Design
- Critical Appraisal of different Research Methods
- Data Analysis and Interpretation
- Research Ethics and Integrity

ASK



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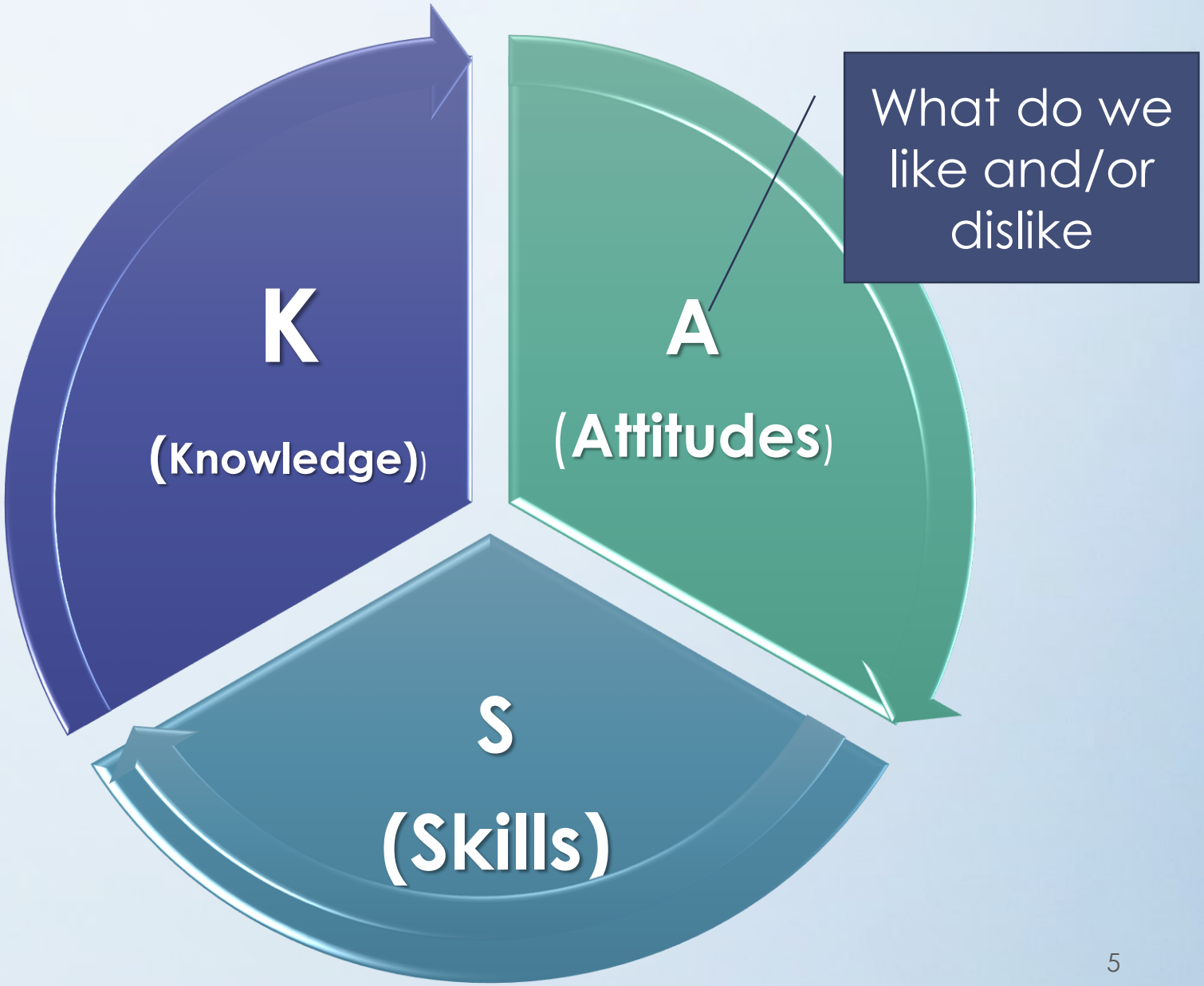
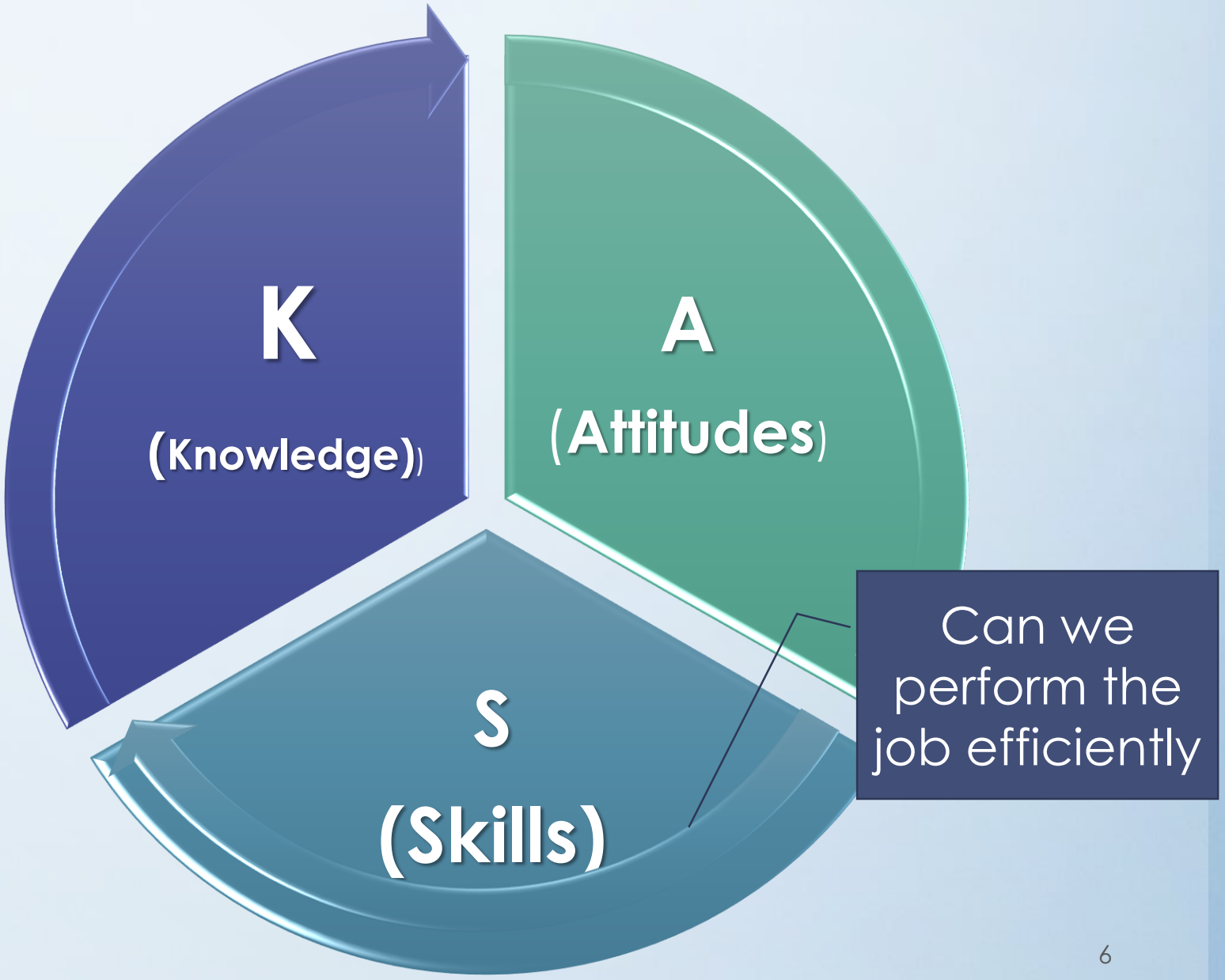

K
(Knowledge)
A
(Attitudes)
What do we like and/or dislike
S
(Skills)

ASK


K
(Knowledge)
A
(Attitudes)
S
(Skills)
Can we perform the job efficiently

Chapter 1

Introduction to Research

7

Types of Knowledge

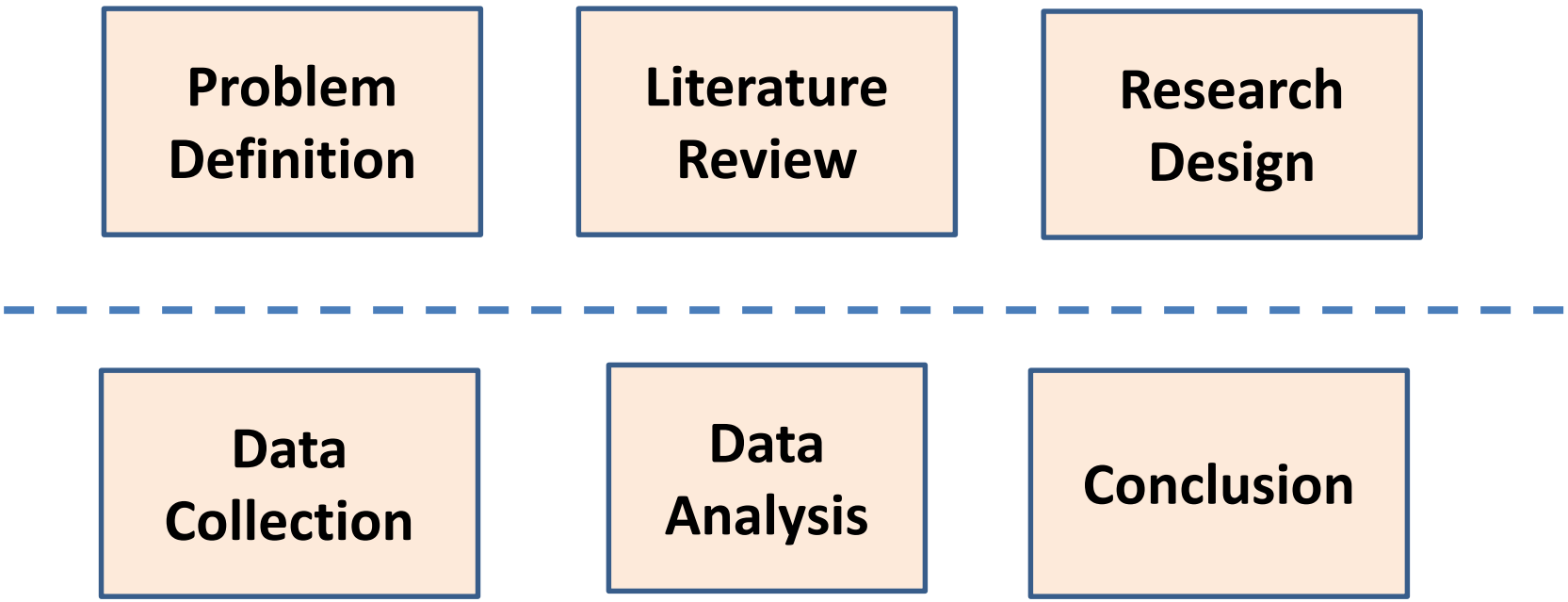
- **Traditional knowledge** is a form of knowledge that we inherit from the culture we grew up in.
- **Authority** is a form of knowledge that we believe to be true because its source is authoritative.
- **Experiential knowledge** can be gained through pleasant /unpleasant experiences and continues throughout life
- **Scientific knowledge**, on the other hand, is based on studies conducted by researchers. In a nutshell, scientific knowledge is knowledge we can trust.

Definition of Business Research

- **Business research**: an **organized**, **systematic**, **data-based**, **critical**, **objective**, scientific inquiry or investigation into a **specific problem**, undertaken with the **purpose of finding answers** or solutions to it.

- A process of determining, **acquiring**, **analyzing**, **synthesizing**, and **disseminating relevant business data**, information, and insights **to decision makers** in ways that mobilize the organization to take appropriate business actions that, in turn, maximize business performance

The Business Research Process

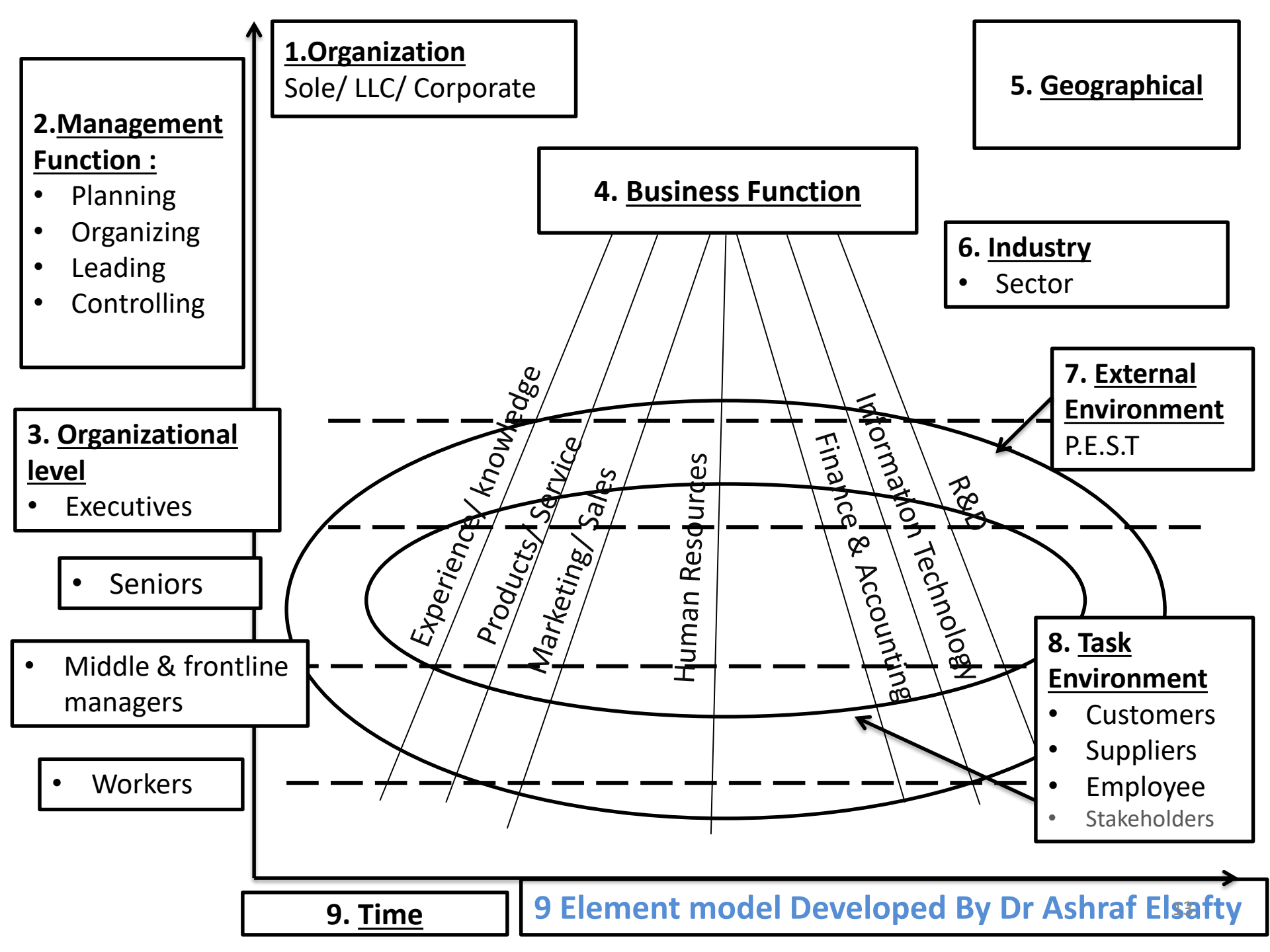


Applied versus Basic Research

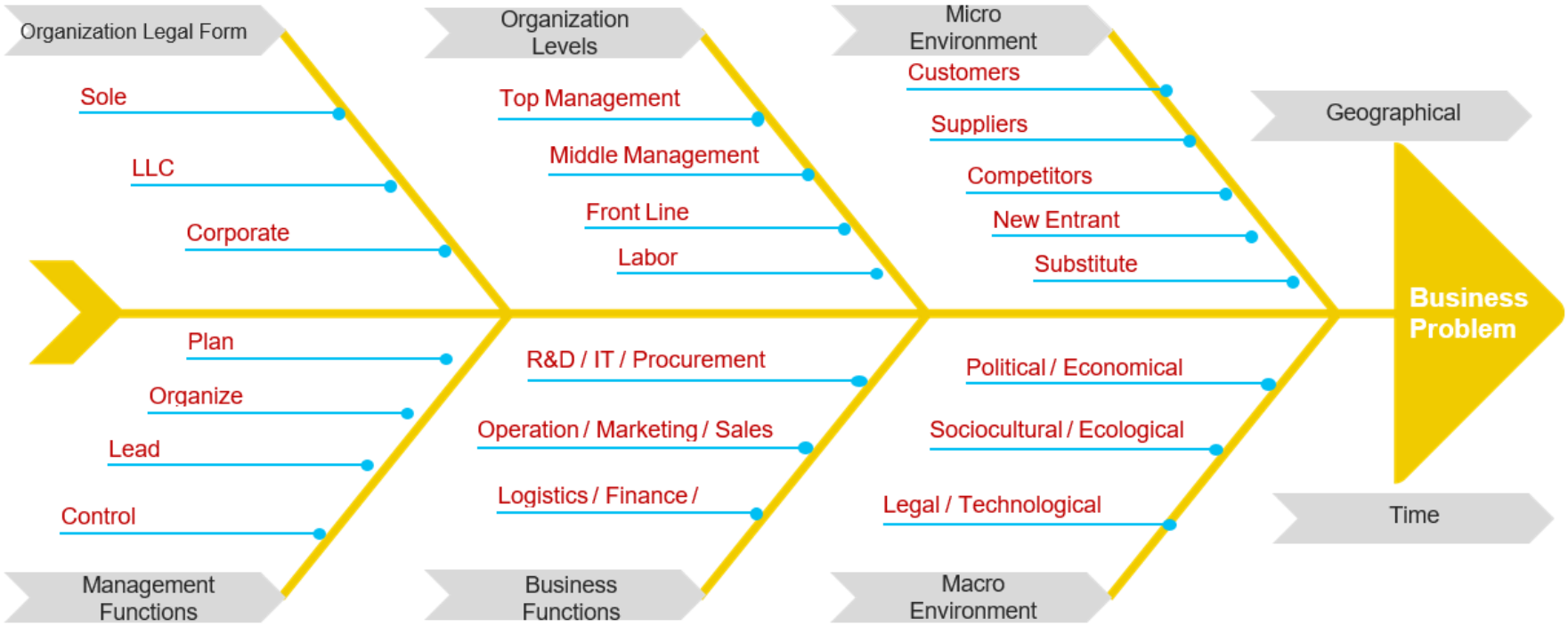
- ***Basic research:*** generates a body of knowledge by trying to comprehend how certain **Phenomena** that occur in organizations can be described or analyzed.
- ***Applied research:*** solves a current **Problem** faced by the manager in the work setting, demanding a timely solution.

Examples of Research Areas in Business

- Absenteeism
- Communication
- Motivation
- Consumer decision making
- Customer satisfaction
- Budget allocations
- Organizational Performance


1.Organization
Sole/ LLC/ Corporate
5. Geographical
2.Management Function :
• Planning
• Organizing
• Leading
• Controlling
4. Business Function
6. Industry
• Sector
7. External Environment
P.E.S.T
3. Organizational level
• Executives
• Seniors
• Middle & frontline managers
• Workers
Experience/ knowledge
Products/ Service
Marketing/ Sales
Human Resources
Finance & Accounting
Information Technology
R&D
8. Task Environment
• Customers
• Suppliers
• Employee
• Stakeholders
9. Time
9 Element model Developed By Dr Ashraf Elsafty

Business Anatomy



Why managers should know about research

- Being knowledgeable about research and research methods helps professional managers to:
  - **Identify** and **effectively solve problems** in the work setting.
  - Know how to discriminate **good from bad research**.
  - Appreciate the multiple influences and effects of factors on a situation.
  - **Take calculated risks** in decision making.
  - **Relate to hired researchers** and consultants **more effectively.**
  - **Combine experience with scientific knowledge** while making decisions.

The Manager–Researcher Relationship

- Each should know his/her role
- Trust levels
- Value system
- Acceptance of findings and implementation
- Issues of inside versus outside researchers/consultants

Internal Researchers

- Advantages:
  - Better acceptance from staff
  - Knowledge about organization
  - Would be an integral part of implementation and evaluation of the research recommendations.
- Disadvantages
  - Less fresh ideas
  - Power politics could prevail
  - Possibly not valued as “expert” by staff

External Researchers

- Advantages
  - Divergent and convergent thinking
  - Experience from several situations in different organizations
  - Better technical training, usually
- Disadvantages
  - Takes time to know and understand the organization
  - Rapport and cooperation from staff not easy
  - Not available for evaluation and implementation
  - Costs

Activity 1

- Suggest Problem that you face in your organization based on the 9 elements.

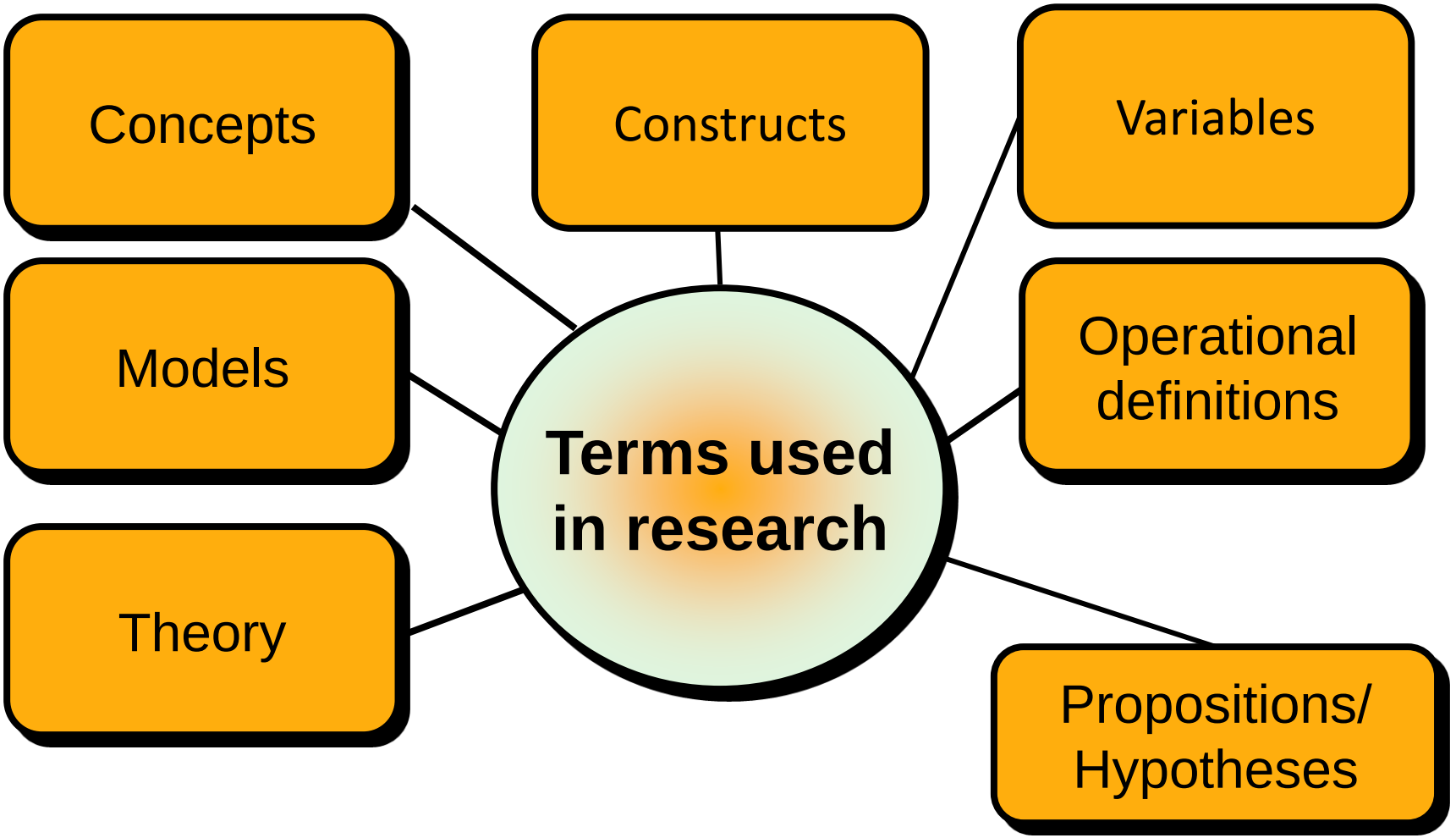
Chapter 2

Scientific Investigation,

Thinking like a Researcher

20

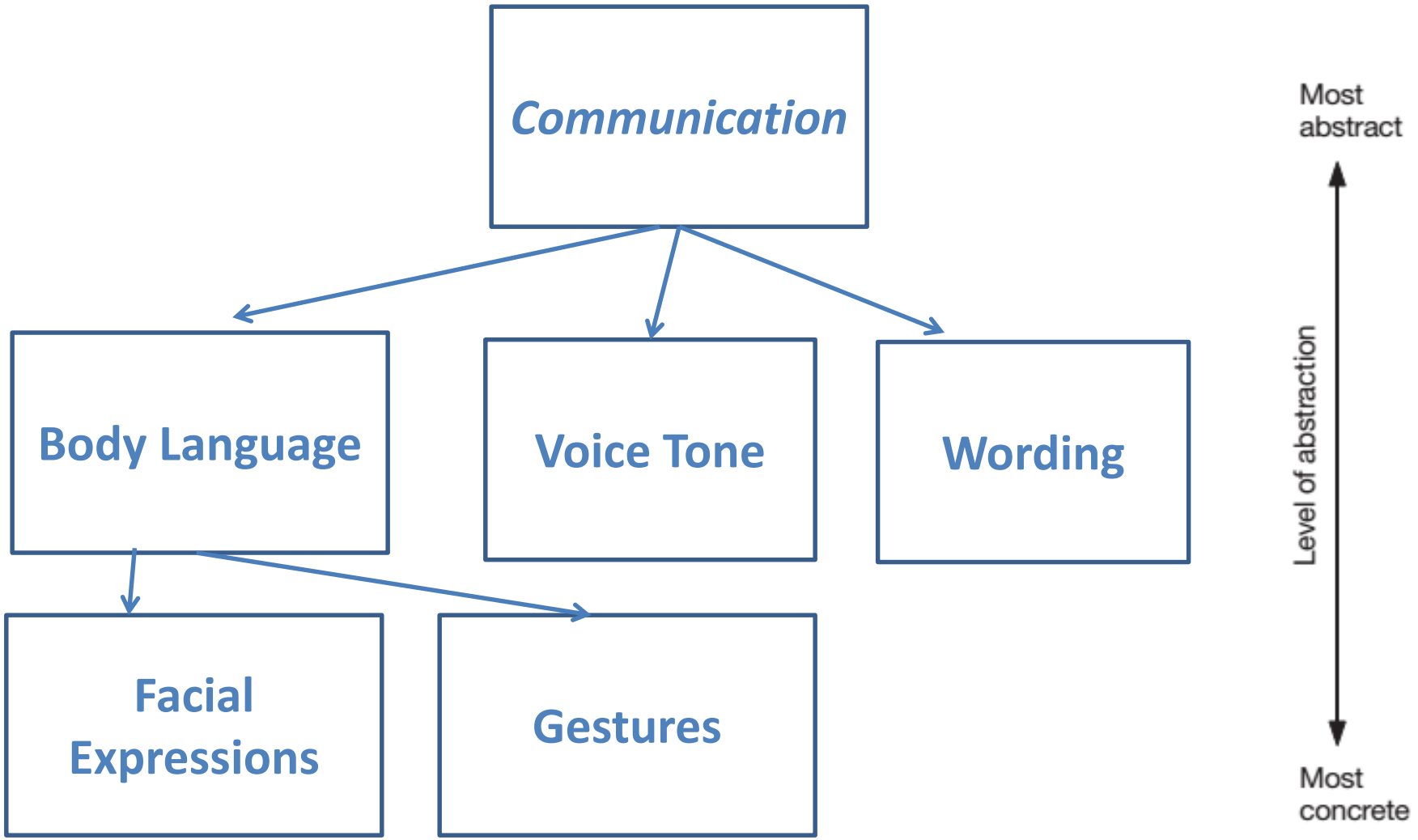
Language of Research



Constructs and Concepts

- **Concepts** have progressive levels of abstraction. Some concepts such as a **person's *weight*** are **precise** and **objective**, while others such as a **person's *personality*** may be **more abstract** and **difficult to visualize**.
- **Construct** may be a simple concept, such as a person's *weight*, or a combination of a set of related concepts such as a **person's *communication skill***, which may consist of several underlying concepts such as the person's *vocabulary, syntax*, and *spelling*.
- **Variable** is a measurable representation of an abstract construct. **constructs are not directly measurable**, and we look for proxy measures called variables. *intelligence* is a construct, and ***IQ score*** is a **variable that measures** the **intelligence construct**.

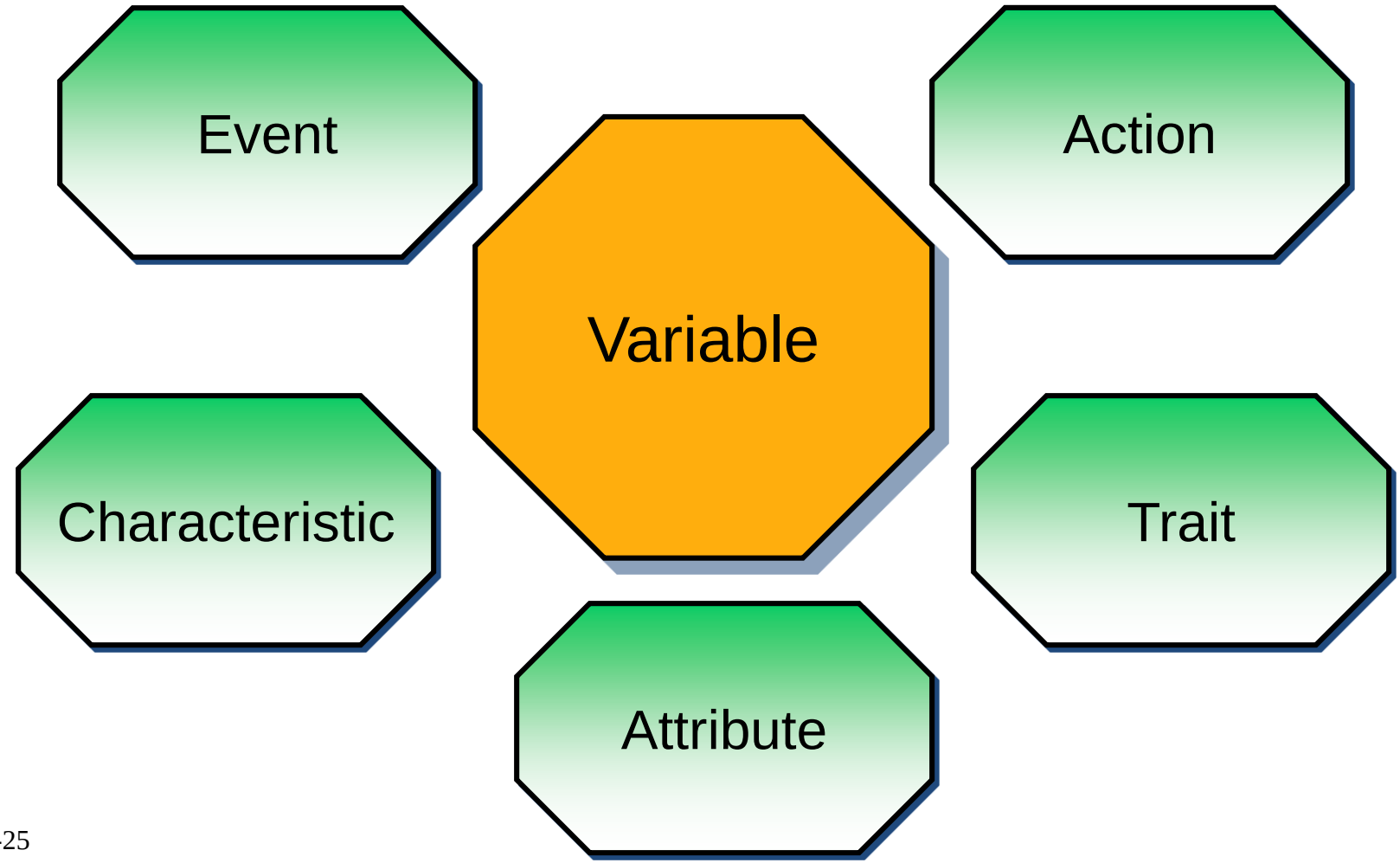
Constructs and Concepts Abstraction



Theory and Model

- A **theory** is a set of systematically **interrelated constructs** and propositions intended to **explain and predict a phenomenon** or behavior of interest, within certain boundary conditions and assumptions. Essentially, a **theory is a systemic collection of related theoretical propositions**.
- A **model** is a **representation of all or part of a system** that is **constructed to study that system** (e.g., how the system works or what triggers the system). While a **theory tries to explain** a phenomenon, a **model tries to represent** a **phenomenon**.

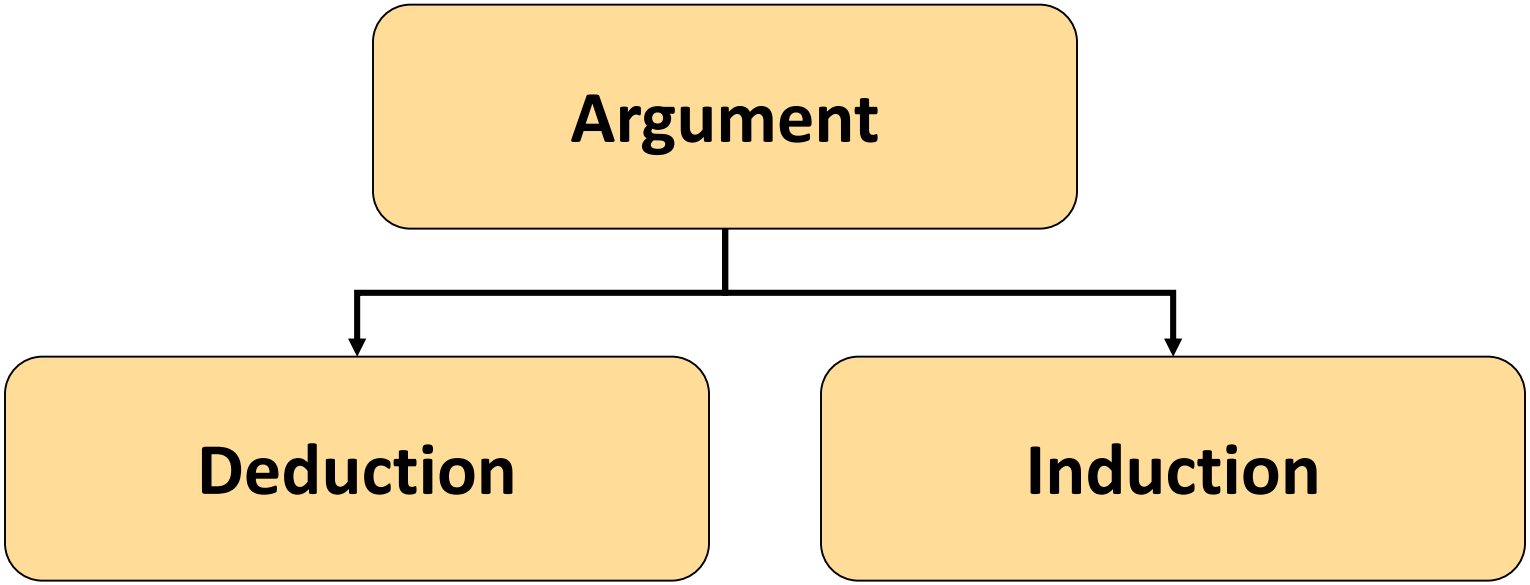
A Variable Is the Property Being Studied



Deduction and Induction

- **Deductive reasoning**: application of a general theory to a specific case.
  - Hypothesis testing
- **Inductive reasoning**: a process where we observe specific phenomena and on this basis arrive at general conclusions.
  - Counting white swans
- Both inductive and deductive processes are often used in research.

Sound Reasoning



Deductive Reasoning

Inner-city household interviewing is especially difficult and expensive

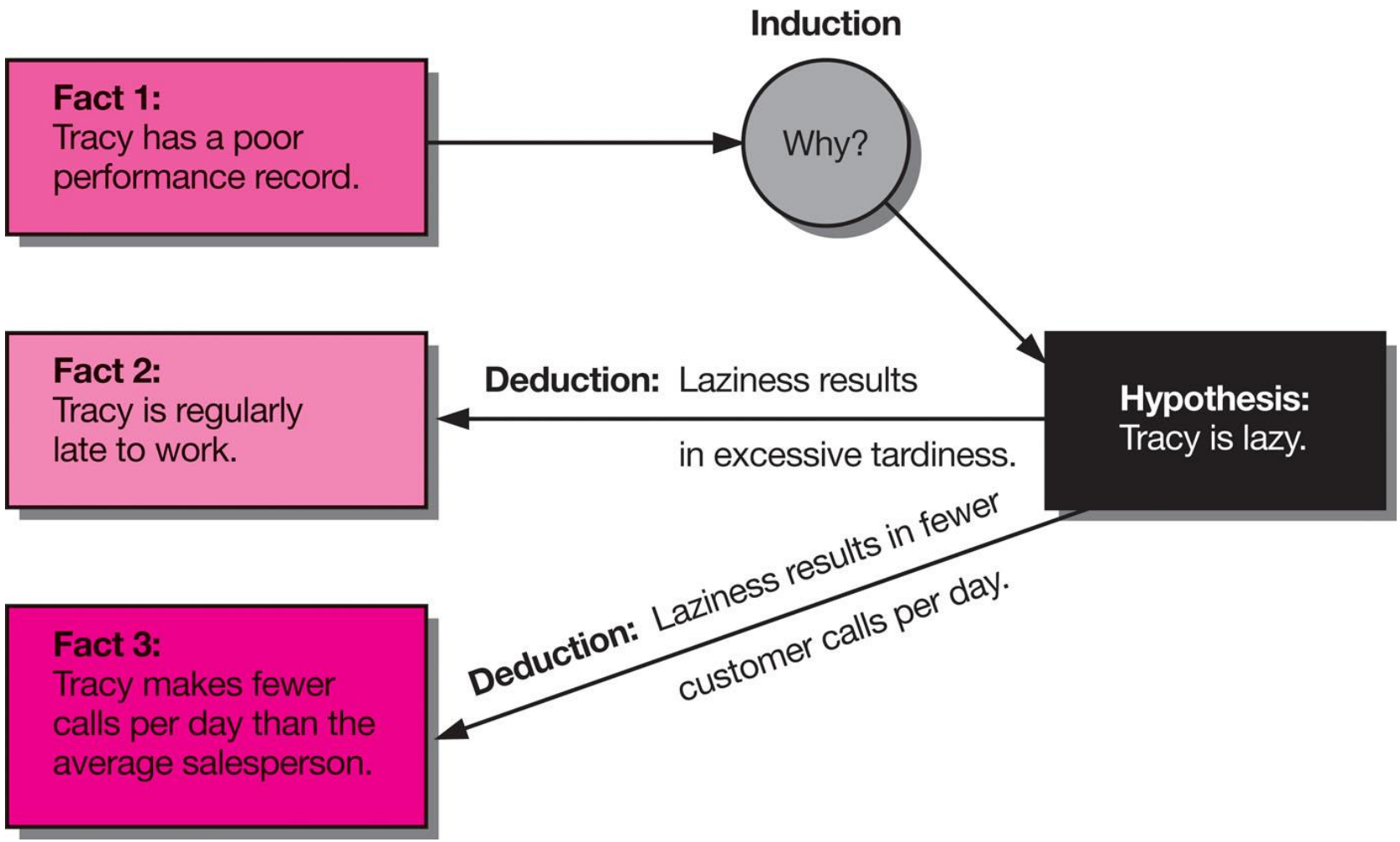
This survey involves substantial inner-city household interviewing

The interviewing in this survey will be especially difficult and expensive

Inductive Reasoning

- Why didn’t sales increase during our promotional event?
  - Our retailers **did not have sufficient stock** to fill customer requests during the promotional period
  - A **strike by employees** prevented stock from arriving in time for promotion to be effective
  - **COVID closed retail outlets** in the region for 2 months during the promotion

Employee's Performance



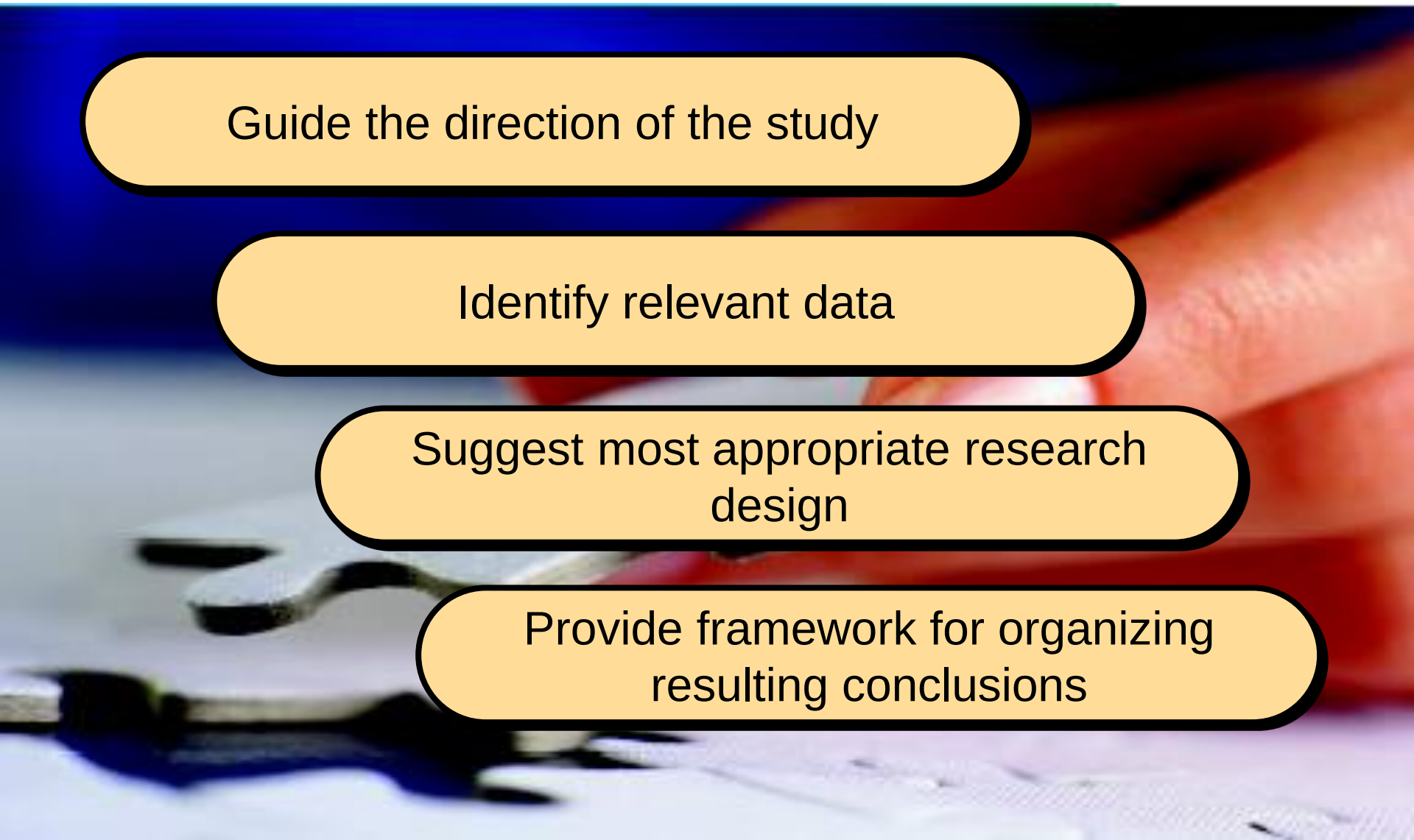
Hypothetico-Deductive Research

- The Seven-Step Process in the Hypothetico-Deductive Method
  - Identify a broad problem area
  - Define the problem statement
  - Develop hypotheses – Theoretical Framework
  - Determine measures
  - Data collection
  - Data analysis
  - Interpretation of data

Hypotheses

- A **hypothesis** can be defined as a **tentative, yet testable, statement**, which **predicts what you expect to find in your empirical data**.
- hypotheses can be defined as **logically conjectured relationships between two or more variables** expressed in the form of testable statements.
- By testing the hypotheses and confirming the conjectured relationships, it is expected that solutions can be found to correct the problem encountered.

The Role of Hypotheses



- Guide the direction of the study
- Identify relevant data
- Suggest most appropriate research design
- Provide framework for organizing resulting conclusions

Hypothesis Formats
Relational Hypotheses

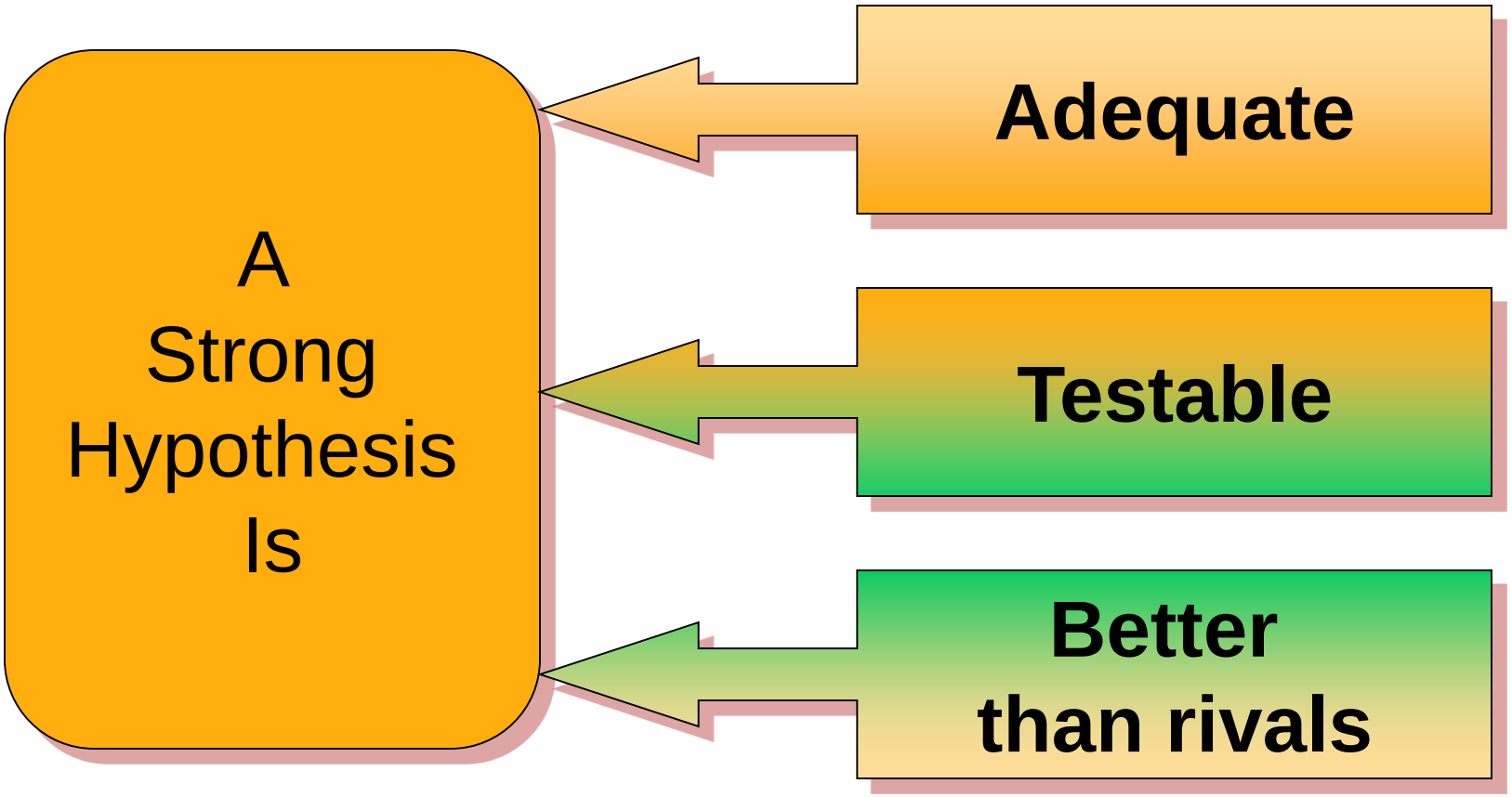
Correlational

- Young women (under 35) purchase fewer units of our product than women who are older than 35.
- The number of Cars sold varies directly with the level of the business cycle.

Causal

- An increase in family income leads to an increase in the percentage of income saved.
- Loyalty to a grocery store increases the probability of purchasing that store's private brand products.

Characteristics of Strong Hypotheses



Activity 2

- Determine the Constructs and Concepts of the Problem and suggest Hypothesis

Hallmarks of Scientific Research:

- Hallmarks or main distinguishing characteristics of scientific research:
  - Purposiveness
  - Rigor
  - Testability
  - Replicability
  - Precision and Confidence
  - Objectivity
  - Generalizability
  - Parsimony

Chapter 3

The Research Process - *The Broad Problem Area and Defining the Problem Statement*

38

The Broad Problem Area

- Examples of broad problem areas that a manager could observe at the workplace:
  - **The newly installed information system is not being used by the managers for whom it was primarily designed**.
  - Training programs are not as effective as anticipated.
  - The sales volume of a product is not picking up.
  - The **introduction of flexible work hours has created more problems** than it has solved in many companies.

Preliminary Information Gathering

- Nature of information to be gathered:
  - Background information of the organization.
  - Prevailing knowledge on the topic.

Literature Review

- A good literature survey:
  - Ensures that **important variables are not left out** of the study.
  - Helps the **development of the theoretical framework** and **hypotheses** for testing.
  - Ensures that the **problem statement is precise** and clear.
  - Enhances testability and replicability of the findings.
  - Reduces the risk of "**reinventing the wheel**".
  - Confirms that the **problem is perceived as relevant and significant**.

Data sources

- Textbooks
- Academic and professional journals
- Thesis
- Conference proceedings
- Unpublished manuscripts
- Reports of governmental departments and corporations
- Newspapers
- The Internet

Searching for Literature

- Most libraries have the following electronic resources at their disposal:
  - Electronic journals
  - Full-text databases
  - Bibliographic databases
  - Abstract databases

Google Scholar

- Search on Google Scholar
- https://scholar.google.com/
- Present Samples of Research on ICT - Health

APA Format

APA, Chicago, Harvard, IEEE, ISO.

Literature Review: Identification (Search, Discussion), Evaluation, Documentation using APA format.

Citation, Quotation, Plagiarism:

End Note, Mendeley, MS word.

Measuring organizational performance should be linked to the employee performance (Khairy, 2011).

Therefore, "measuring organizational performance must start by measuring employee productivity and performance". (Emam, 2009).

While conducting such research we must consider cost and project management (Emam, 2009).

References

Emam, M. (2009). Factors influncing employee performance. *Journal of MsM sceince*, 250-300.

Khairy, A. (2011). Measuring employee performance. *Journal of Scientific research*, 140-160.

APA style

To measure organizational satisfaction, we need to start by measuring organizational performance (Shereet, 2010) .

Therefore, “to measure organizational performance we must start by measuring employee satisfaction” (Khairy, 2004).

Jfghfghdfhgdflkjgdjfg jkdvbnkjdfhgvnjkdfghvn kjfghdvbnjfghkbnghkjhvndkjfghvndfkjgnvjfgn (Shereet, 2010)

End Note – Mendeley

References

Khairy, M. (2004). Factors affecting employee management. *Journal of Assuit Science*, 200-240.

Shereet, M. (2010). Measuring employee satisfaction. *Journal of Eslsca Science*, 160-175.

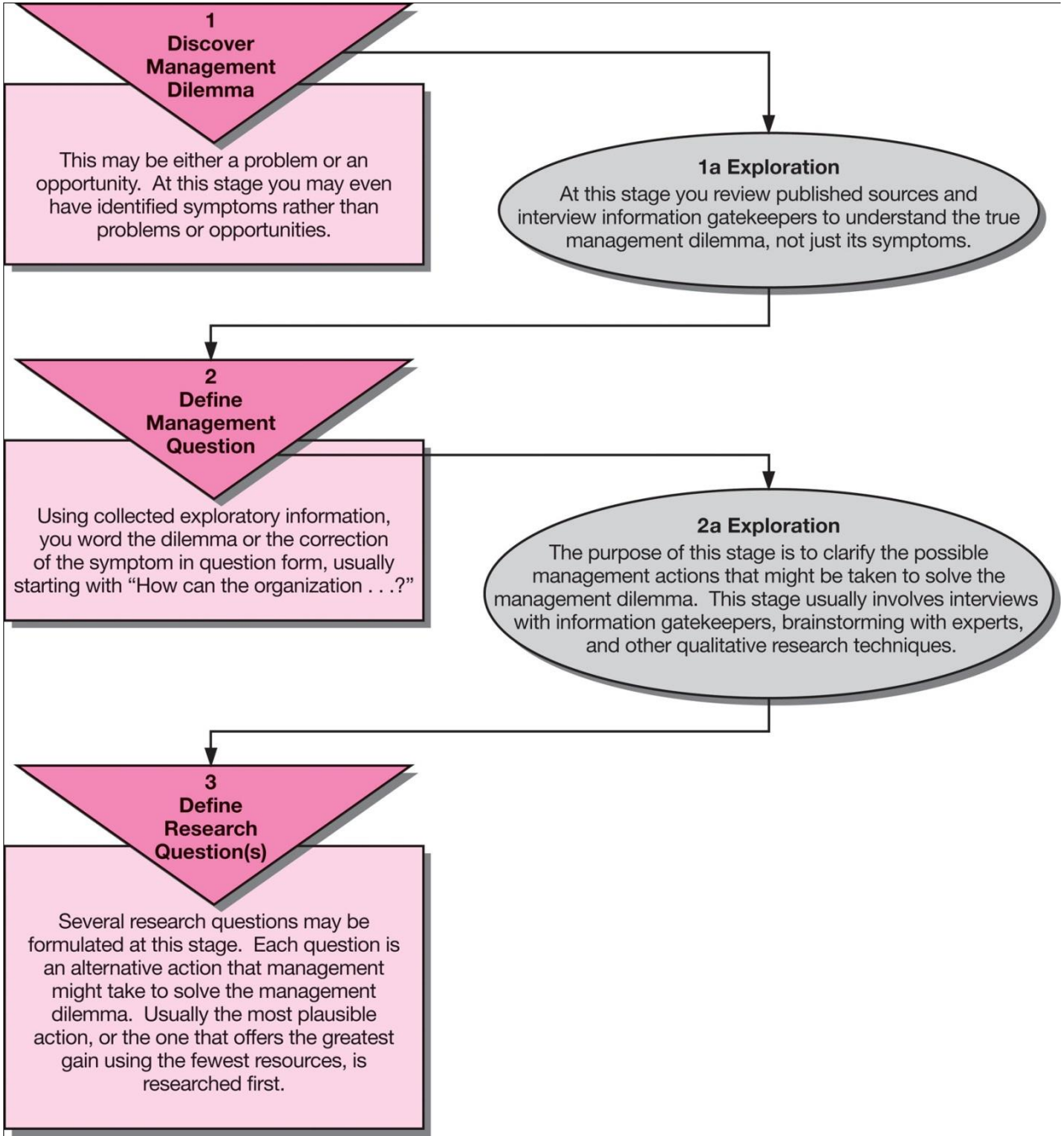
The Problem Statement

- ***Examples of Well-Defined Problem Statements***
  - **To what extent do knowledge-related factors affect the use of MIS by middle managers?**
  - To what extent do the structure of the organization and type of information systems installed account for the variance in the perceived effectiveness of managerial decision making?
  - **To what extent has the new advertising campaign been successful in creating the high-quality, customer-centered corporate image that it was intended to produce?**
  - What are the effects of downsizing on the long-range growth patterns of companies?

Stage 1:
Clarifying the Research Question

Management-research question hierarchy process begins by identifying the management dilemma

Formulating the Research Question

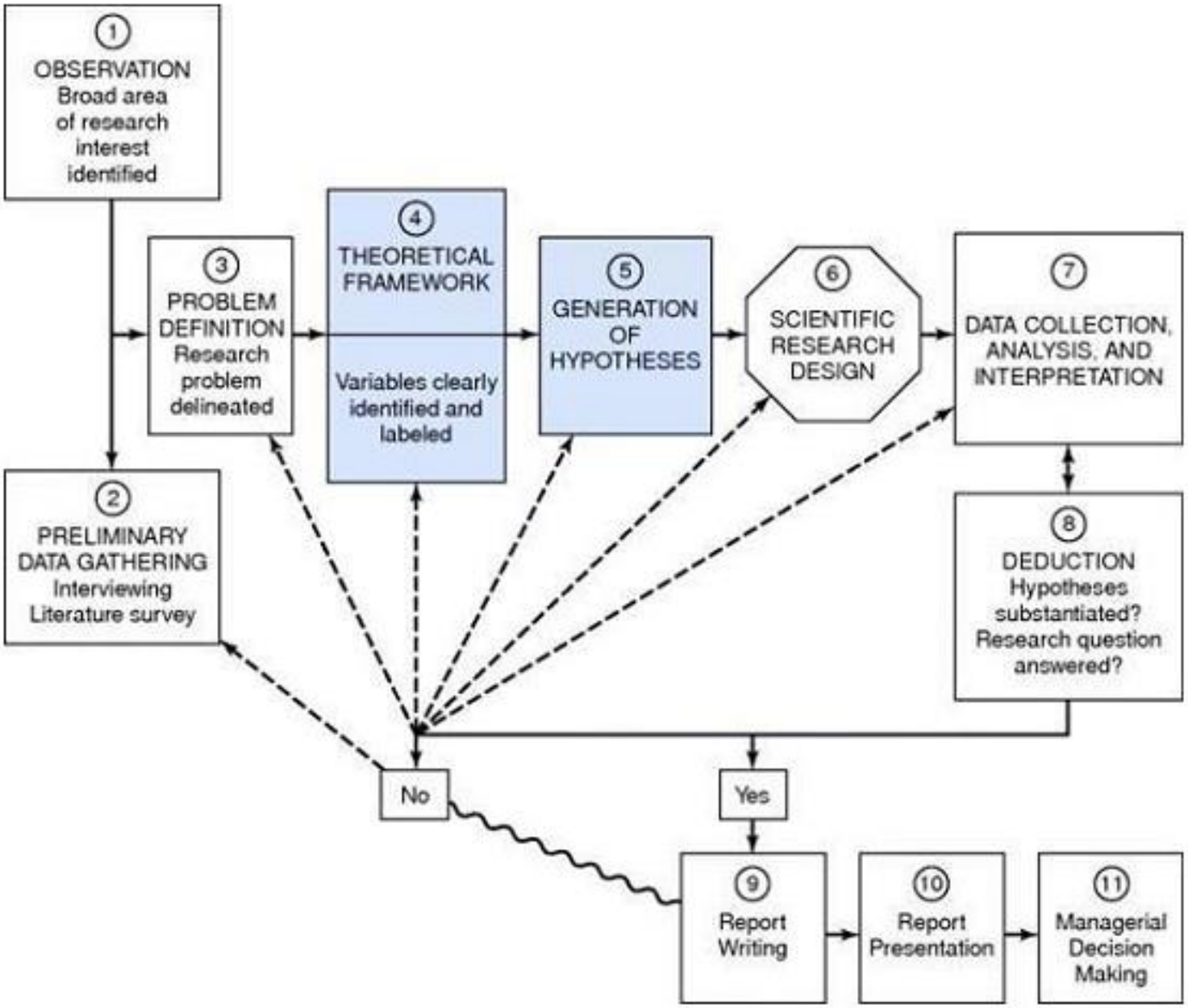


Chapter 4

The Research Process - *Theoretical Framework & Hypothesis Development*

50

Figure 4.1 The research process and where this chapter fits in



Theoretical Framework

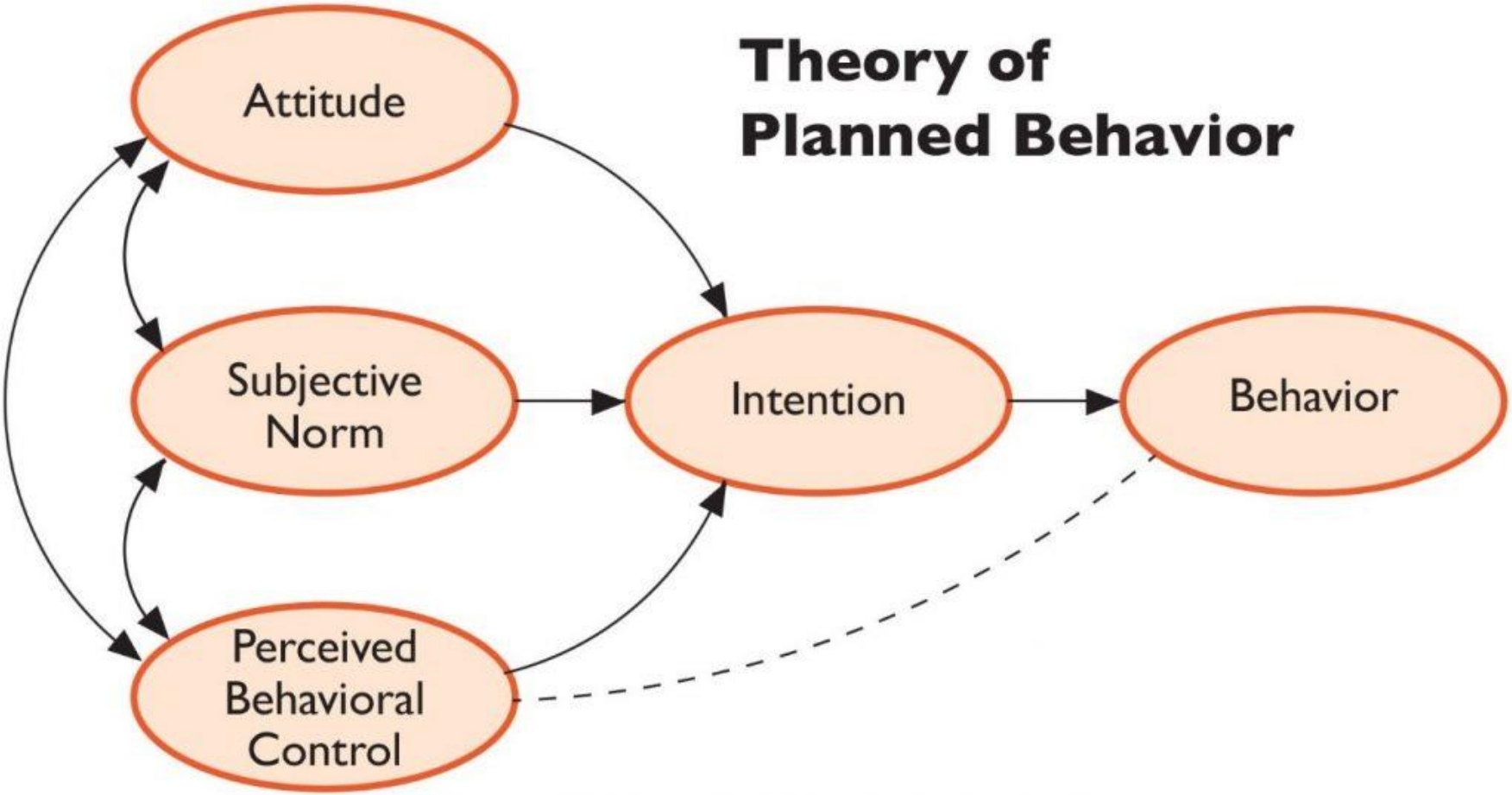
- **A theoretical framework** represents your beliefs on *how* certain phenomena (or variables or concepts) are related to each other (a model) and an explanation on *why* you believe that these variables are associated to each other (a theory).
- A theoretical framework is the foundation of hypothetico-*deductive* research as it is the basis of the hypotheses that you will develop.

Theoretical Framework

The process of building a theoretical framework includes:

- ***Identify*** *and* ***label*** the variables correctly
- State the ***relationships*** among the variables: formulate *hypotheses*
- Explain *how or why* you expect these relationships

Example of Theoretical Framework



Variable

- Any concept or construct that varies or changes in value

- Main types of variables:
  - Dependent variable
  - Independent variable
  - Moderating variable
  - Mediating variable
  - Control Variables

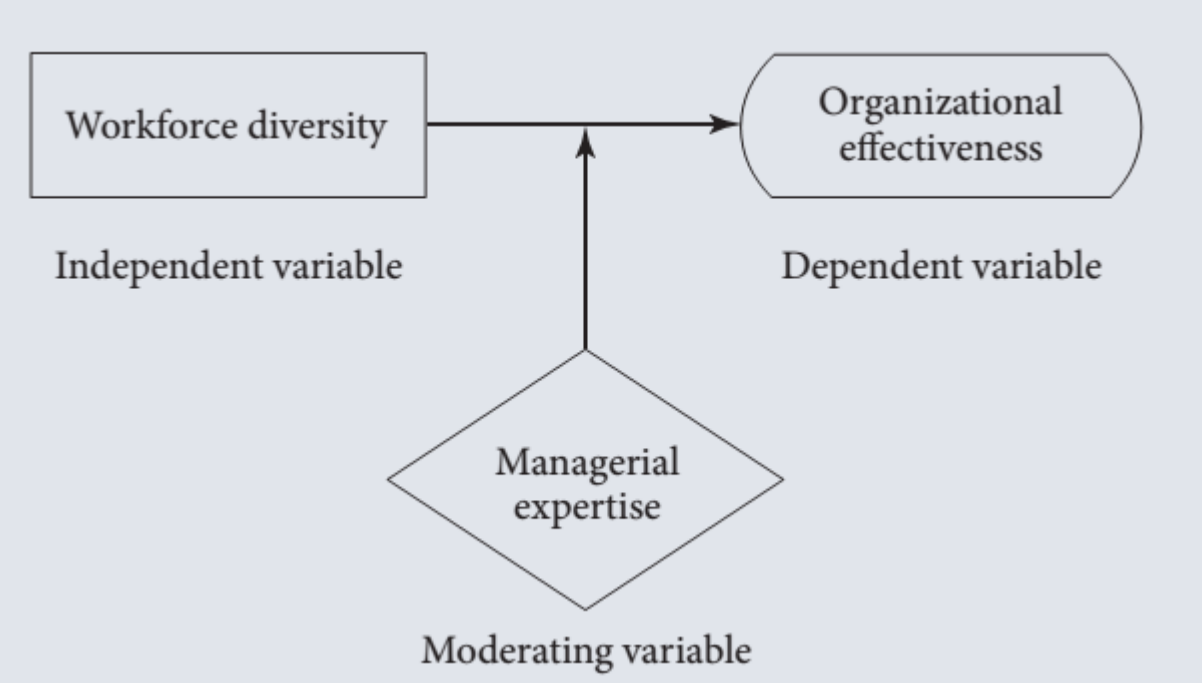
(In)dependent Variables

- Dependent variable (DV)
  - Is of primary interest to the researcher. The goal of the research project is to understand, predict or explain the variability of this variable.

- Independent variable (IV)
  - Influences the DV in either positive or negative way. The variance in the DV is accounted for by the IV.

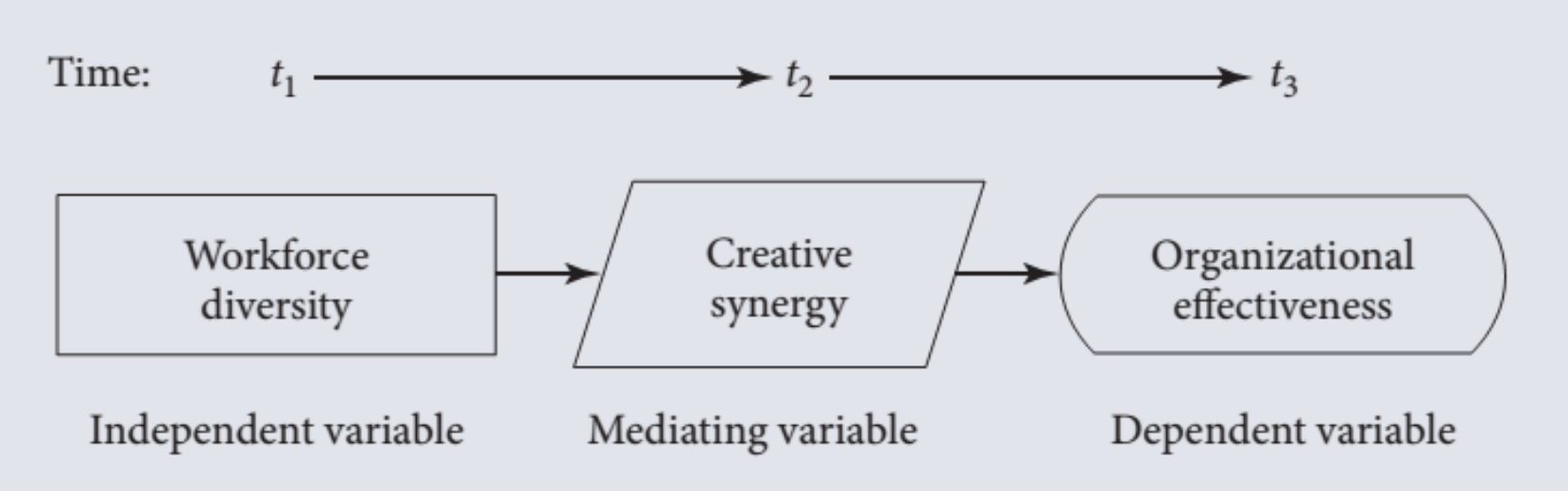
Moderators

- Moderating variable: is a variable that affects the direction and/or strength of relation between independent and dependent variable. (Motivation, Engagement, etc…)

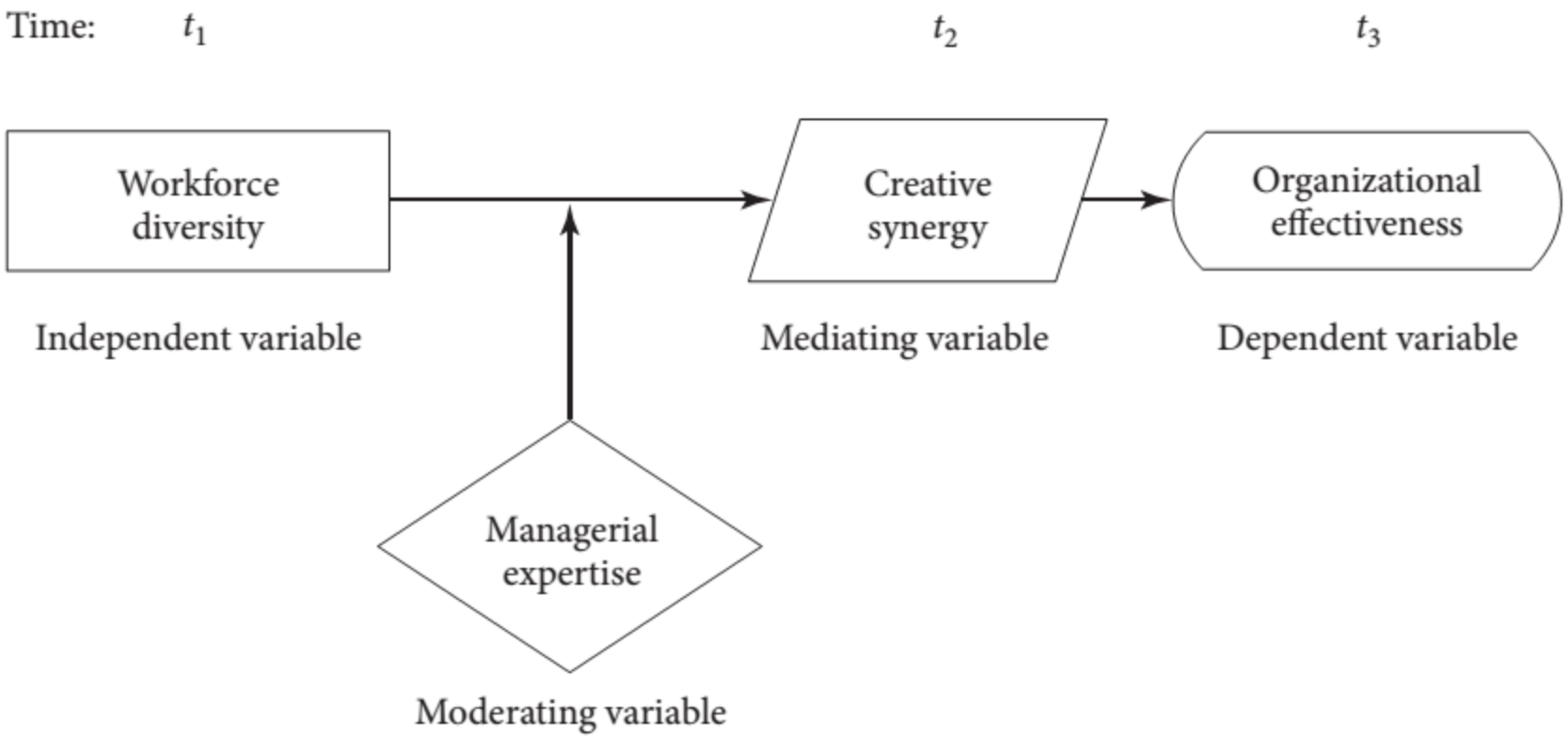


Mediating Variable

– It surfaces between the time the independent variables start operating to influence the dependent variable and the time their impact is felt on it.



Theoretical Framework Example



Hypothesis

- A proposition that is empirically testable. It is an empirical statement concerned with the relationship among variables.

- Good hypothesis:
  - Must be adequate for its purpose
  - Must be testable
  - Must be better than its rivals

- Can be:
  - Directional
  - Non-directional

Hypothesis

- **Directional Hypothesis:**

➢ The greater the stress experienced in the job, the lower the job satisfaction of employees.

➢ Women are more motivated than men.

- **Non Directional Hypothesis:**

➢ There is a relation between arousal-seeking tendency and consumer preferences for complex Mobile phones.

➢ There is a difference between Women and Men regarding shopping behavior.

Independent and Dependent Variable Synonyms

Independent Variable (IV)

- Predictor
- Presumed cause
- Stimulus
- Antecedent
- Manipulated
- Stimulus

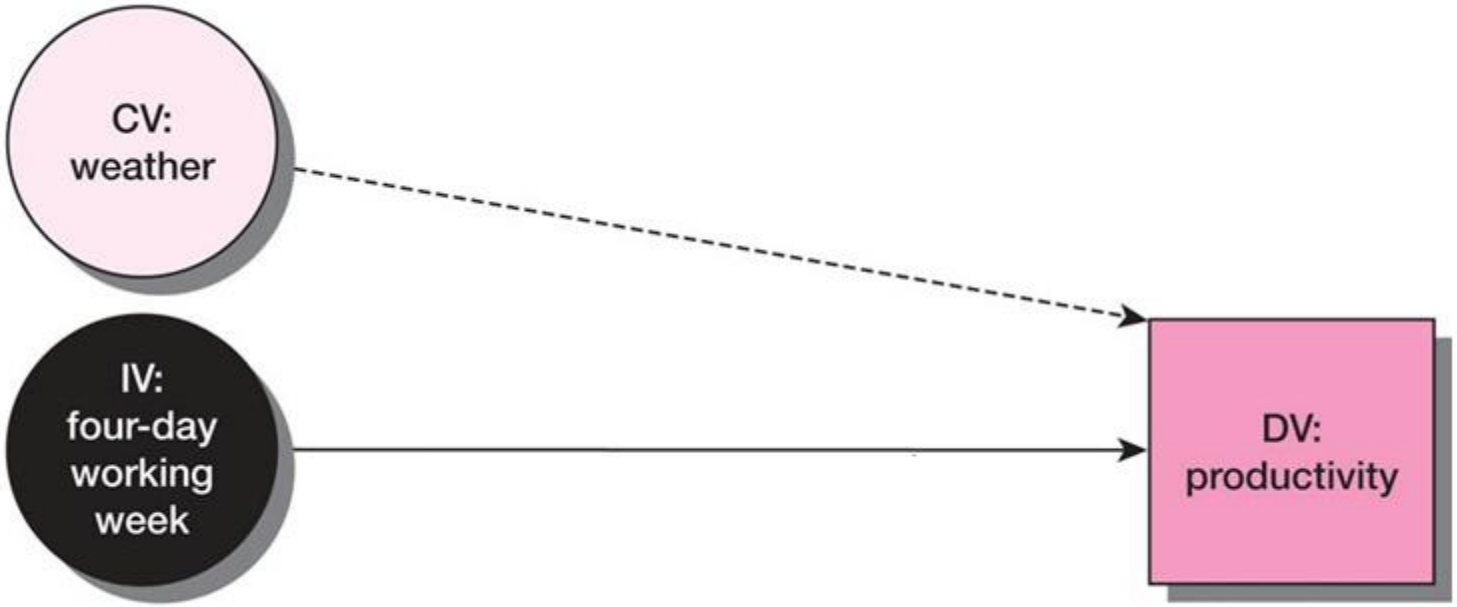
Dependent Variable (DV)

- Outcome
- Presumed effect
- Response
- Consequence
- Measured outcome
- Response

Control Variables

- Control variables are any variable that can manipulate your variables of interest and as a result manipulate your findings in undesirable ways.
- We include **control variables** our investigation to ensure that our results are not biased by not including them. Taking the example of the effect of the four-day working week again, one would normally think that weather conditions.

Control Variables



Chapter 5

The Research Process – *Elements of Research Design*

65

Research Design

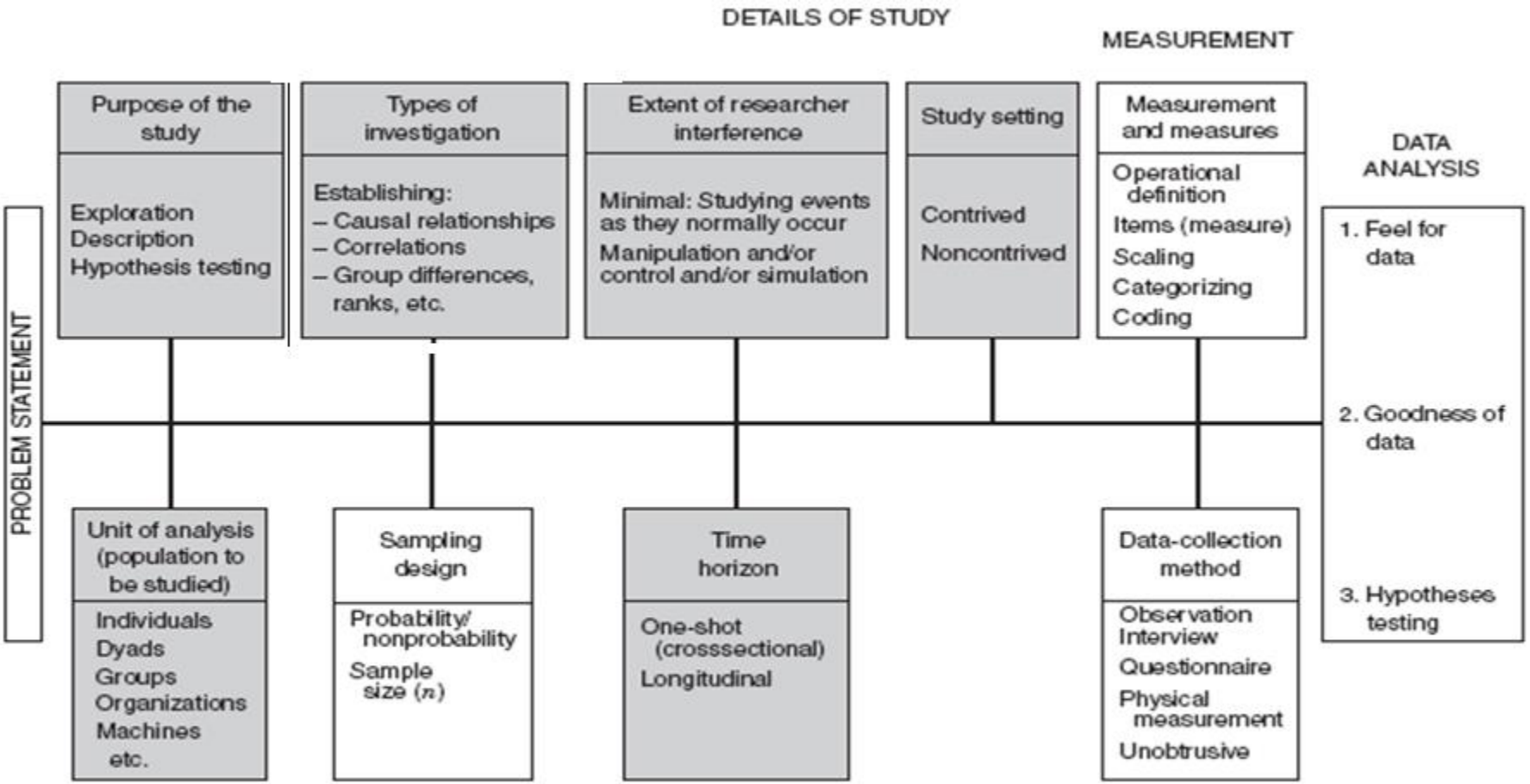


Figure 5.1: The research design.

Purpose of the Study

- Exploration
- Description
- Hypothesis Testing

Exploratory study:

- It is undertaken when don't know not much about the situation at hand, or no information is available on how similar problems or research issues have been solved in the past.
- Example:
  - A service provider wants to know why his customers are switching to other service providers?
  - The maintenance Manager wants to sell maintenance Contracts

Descriptive study:

- Objective: to describe the characteristics of the variables of interest.
- In organizations: to describe the characteristics of a group of employees, their age, educational level and length of service.
- To understand the characteristics of organizations that follow certain common practices.
- Example, to describe the characteristics of the organizations that implement ERP or Service Marketing.

Descriptive study:

- Example, a bank manager wants to have a profile of the individuals who have loan payments outstanding for 6 months and more. It would include details of their average age, earnings, nature of occupation, full-time/part-time employment status, and the like. To help him to decide on the types of individuals who should be made ineligible for loans in the future.

Hypothesis testing:

- Studies that engage in hypotheses testing usually explain the nature of certain relationships, or establish the differences among groups or the independence of two or more factors in a situation.
- Example:
  - A marketing manager wants to know if the sales of the company will increase if he doubles the advertising dollars.

Type of Investigation

- Causal Study
  - it is necessary to establish a definitive cause-and-effect relationship.
- Correlational study
  - identification of the important factors “associated with” the problem.

Study Setting

- Research can be done in:
- Non-contrived settings: The natural environment where events normally occur .
- Contrived settings: artificial arrangement of the settings

Extent of Researcher Interference

- The extent of researcher interference has a direct bearing on whether a causal or correlational study is undertaken.
- **Minimal**: A correlational study is conducted in the natural environment of the organization with the researcher interfering minimally with the normal flow of events.
- **Moderate**: in a Field Experiment
- **Excessive**: In Lab Experiment causal studies conducted to establish cause → effect relationships, the researcher tries to manipulate certain variables to study the effects of such manipulation on the dependent variable of interest

The Field Study

- Studies done in non-contrived settings
- Exploratory and descriptive (correlational) studies are invariably conducted in non-contrived settings.
- Minimal Interference from Researcher

The Field Experiment

- A field experiment is an experiment done in the natural environment in which events normally occur, with treatments given to one or more groups.
- Moderate Interference from Researcher

The Laboratory (Lab) Experiment and The Field Experiment

- The Lab Experiment : When a cause effect relationship is to be clearly established between in independent a dependent variable of interest
- All other variables that might contaminate or confound the relationship have to be tightly controlled.
- Maximum Interference from Researcher.
- Contrived Settings

Unit of analysis

- The **unit of analysis** refers to the level of aggregation of the data collected
- **Individuals**: Researcher about motivational levels of employees is interested in individual employees.
- **Dyads**: Analysis of husband–wife interactions in families and supervisor–subordinate relationships in the workplace.
- **Group**: if the problem statement is related to group effectiveness.
- **Organizations**: Start-ups VS established companies.
- **Cultures**: Western VS Eastern cultures.

Time Horizon

- Cross-sectional studies
  - Snapshot of constructs at a single point in time
  - Use of representative sample

- Longitudinal studies
  - Constructs measured at multiple points in time
  - Use of same sample = a true panel

Ethical Issues in Research and Lab Experiments

- The following practices are considered unethical:
  - Putting pressure on individuals to participate in research (through coercion, applying social pressure, etc.)
  - Asking demeaning questions that diminish their self-respect.
  - Deceiving subjects by deliberately misleading them as to the true purpose of the research.
  - Exposing participants to physical or mental stress.
  - Not allowing them to withdraw from the research when they want to.
  - Using the research results to disadvantage the participants, or for purposes that the participants would not like.
  - Withholding benefits from control groups.

Chapter 6

Measurement of Variables: Operational Definition

81

Measurement

- *Measurement*: the assignment of numbers or other symbols to *characteristics* (or *attributes*) of *objects* according to a pre-specified set of rules.

How Variables Are Measured

- Objects that can be physically measured by some calibrated instruments pose no problem. Data representing several demographic characteristics of the office personnel are also easily obtained by asking employees simple, straight forward questions, for example:
  - How long have you been working in this organization?
  - What is your job title?
  - What is your marital status?

Objects and Characteristics

- *Objects* include persons, strategic business units, companies, countries, kitchen appliances, restaurants and so on.
- *Examples of characteristics* of objects are achievement motivation, organizational effectiveness, shopping enjoyment, length, weight, ethnic diversity, service quality, conditioning effects and taste.

Types of Variables

- Two types of variables:
  - One lends itself to objective and precise measurement;
  - The other is more nebulous “Vague” and does not lend itself to accurate measurement because of its abstract and subjective nature.

Concepts & Constructs

- A scientific concept consists of three parts:
- ***Concept Labels:*** facilitates communication.
- **Theoretical definition**: the verbal *meaning* attached to the concept label.
- Example: “Income”, refers to, the amount of money people receive in return for making labor or knowledge available to another.
- **Operational Definition**: translates the verbal meaning provided by the theoretical definition into a prescription for *measurement*.

Operational Definition

- Operationalizing, or operationally defining a concept so that it becomes measurable, is achieved by looking at the behavioral dimensions, facets, or properties denoted by the concept, and categorizing these into observable and measurable elements.

Operationalizing Concepts

- Operationalizing concepts: reduction of abstract concepts to render them measurable in a tangible way.
- Operationalizing is done by looking at the behavioural dimensions, facets, or properties denoted by the concept.

Operationalization: Dimensions and Elements

- Example: Aggression has at least two *dimensions*:
- Verbal aggression: shouting and swearing at a person
- Physical aggression: throwing objects, hitting a wall, and physically hurting others
- A valid measurement scale of aggression would have to include "**Elements**" that measure verbal aggression and "**Elements**" that measure physical aggression.
- A measurement scale that only includes items measuring physical aggression would not be valid if our aim were to measure aggression.

Operationalization

- Scale handbooks, such as the *Marketing Scales Handbook* or the *Handbook of Organizational Measurement*, provide an exhaustive overview of **measurement scales** that have appeared in the academic literature.

Achievement Motivation

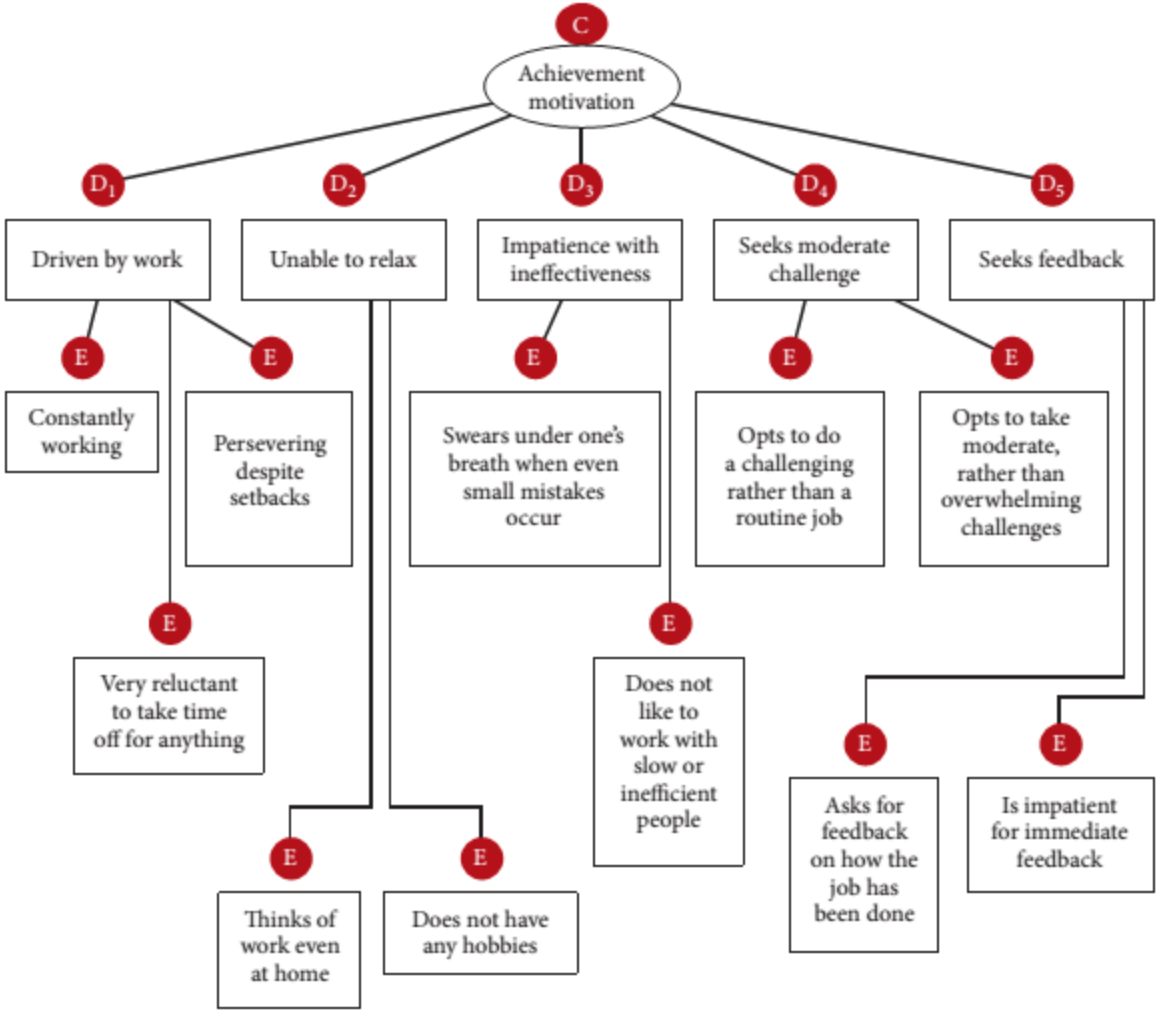


FIGURE 11.2

Dimensions (D) and elements (E) of the concept (C) "achievement motivation"

Chapter 7

Measurement of Variables: Scaling, Reliability, Validity

92

Scale

- Scale: tool or mechanism by which individuals are distinguished as to how they differ from one another on the variables of interest to our study.

Scales and Measurement

Scales

- Nominal scale
- Ordinal scale
- Interval scale
- Ratio scale

Rating scale

- Likert scale
- Itemized rating scale

Nominal Scale

- A nominal scales categorize individuals or objects into mutually exclusive and collectively exhaustive groups.

- What is your department?

O Marketing	O Maintenance	O Finance
O Production	O Servicing	O Personnel
O Sales	O Public Relations	O Accounting

- What is your gender?
  O Male
  O Female

Ordinal Scale

- Ordinal scale: not only categorizes variables in such a way as to denote differences among various categories, it also rank-orders categories in some meaningful way.
- What is the highest level of education you have completed?

Job characteristic	Rank of importance
The job provide interaction with others	
Use a number of different skills.	
Complete a whole task from start to end	
Serve others	
Work independently.	

Interval Scale

- Interval scale: the interval scale lets us measure the distance between any two points on the scale.
- The difference between any two values on the scale is identical to the difference between any other two neighboring values of the scale.

Interval scale

- Circle the number that represents your feelings at this particular moment best. There are no right or wrong answers. Please answer every question.

1. I invest more in my work than I get out of it

I disagree completely 1 2 3 4 5 I agree completely

2. I exert myself too much considering what I get back in return

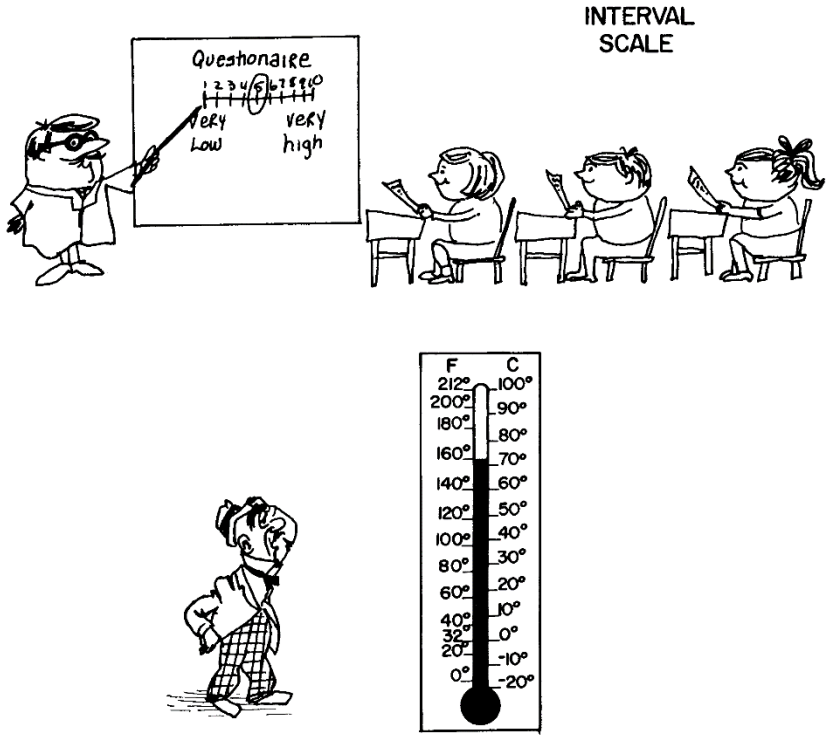
I disagree completely 1 2 3 4 5 I agree completely

3. For the efforts I put into the organization, I get much in return

I disagree completely 1 2 3 4 5 I agree completely

Interval scale

The clinical thermometer is a good example of an interval-scaled instrument; it has an arbitrary origin and the magnitude of the difference between 37 degrees and 38 degrees is the same as the difference between 40 and 41 degrees.

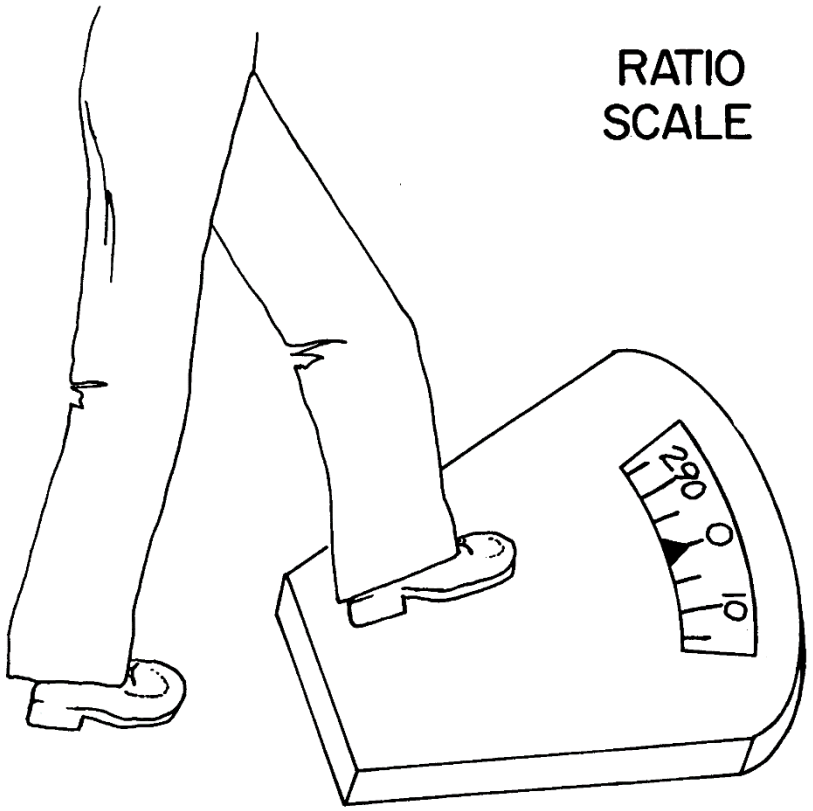


Ratio Scale

- Ratio scale: overcomes the disadvantage of the arbitrary origin point of the interval scale, in that it has an absolute (in contrast to an arbitrary) zero point, which is a meaningful measurement point.

- What is your age?

Ratio Scale



Properties of the Four Scales

TABLE 7.1 Properties of the four scales.

Scale	Highlights				Measures of central tendency	Measures of dispersion	Some tests of significance
	Difference	Order	Distance	Unique origin			
Nominal	Yes	No	No	No	Mode	—	X^2
Ordinal	Yes	Yes	No	No	Median	Semi-interquartile range	Rank-order correlations
Interval	Yes	Yes	Yes	No	Arithmetic mean	Standard deviation, variance, coefficient of variation	t, F
Ratio	Yes	Yes	Yes	Yes	Arithmetic or geometric mean	Standard deviation or variance or coefficient of variation	t, F

Note: The interval scale has 1 as an arbitrary starting point. The ratio scale has the natural origin 0, which is meaningful.

Validity of the Measure

- **Validity** refers to the ability or the potential of our data collection tool to capture and measure the construct or the phenomenon that we are interested in measuring.

Reliability

- **Reliability** of measure indicates extent to which it is without bias (error free) and hence ensures consistent measurement across time (stability) and across the various items in the instrument (internal consistency).

Reliability and Validity

Types of Validity

- **Content validity** ensures that the measure includes an adequate and representative set of items that tap the concept.
  - **Face validity** indicates that the items that are intended to measure a concept, do, on the face of it, look like they measure the concept.
  - Face validity is considered by some a basic and minimum index of content validity.

Types of Validity

- **Criterion-related validity** is established when the measure differentiates individuals on a criterion it is expected to predict. It has two parts:
  - **Concurrent validity** when the scale discriminates individuals who are known to be different; that is, they should score differently on the instrument.

  Example: Measuring: Employee's Commitment
  - **Predictive validity** indicates the ability of the measuring instrument to differentiate among individuals with reference to a future criterion.

  Example: Measure aptitude or ability test of employees at the time of recruitment

Types of Validity

- **Construct validity** is similar to content validity in that it measures the level or the degree that a measurement is able to truly measure the construct.
- It is related to the degree that our operationalization of a construct is accurately done.
  - **Convergent validity** when the scores obtained with two different instruments measuring the same concept are highly correlated.
  - **Discriminant validity** when, based on theory, two variables are predicted to be uncorrelated, and the scores obtained by measuring them are indeed empirically found to be so.

Construct validity

- Example, if organization's knowledge is related to its performance, how can we assure that we measure organizational knowledge and not organizational performance?
- Convergent validity: by comparing the observed values of one indicator of one construct with that of other indicators of the same construct and demonstrating similarity (or high correlation) between values of these indicators.
- Discriminant validity is established by demonstrating that indicators of one construct are dissimilar from (i.e., have low correlation with) other constructs.

Types of Validity

Validity	Description
Content validity	**Does the measure adequately measure the concept?**
Face validity	**Do "experts" validate that the instrument measures what is name suggests it measures?**
Criterion-related validity	**Does the measure differentiate in a manner that helps to predict a criterion variable?**
Concurrent validity	**Does the measure differentiate in a manner that helps to predict a criterion variable currently?**
Predictive validity	**Does the measure differentiate individuals in a manner as to help predict a future criterion?**
Construct validity	**Does the instrument tap the concept as theorized?**
Convergent validity	**Do two instruments measuring the concept correlate highly?**
Discriminant validity	**Does the measure have a low correlation with a variable that is supposed to be unrelated to this variable?**

Reliability

- Stability of measures
  - Test-retest reliability
  - Parallel-form reliability

- Internal consistency of measures
  - Inter-item consistency reliability
  - Split-half reliability

Stability

- Stability: ability of a measure to remain the same over time, despite uncontrollable testing conditions or the state of the respondents themselves.
  - Test–Retest Reliability*:* The reliability coefficient obtained with a repetition of the same measure on a second occasion.
  - Parallel-Form Reliability: Responses on two comparable sets of measures tapping the same construct are highly correlated.
    - Both forms have similar items and the same response format, the only changes being the wording and the order or sequence of the questions.

Internal Consistency

- Internal Consistency of Measures is indicative of the homogeneity of the items in the measure that tap the construct.
  - Inter-item Consistency Reliability: a test of the consistency of respondents' answers to all the items in a measure. The most popular test is the Cronbach's coefficient alpha.
  - Split-Half Reliability: Split-half reliability reflects the correlations between two halves of an instrument.

Goodness of Measures

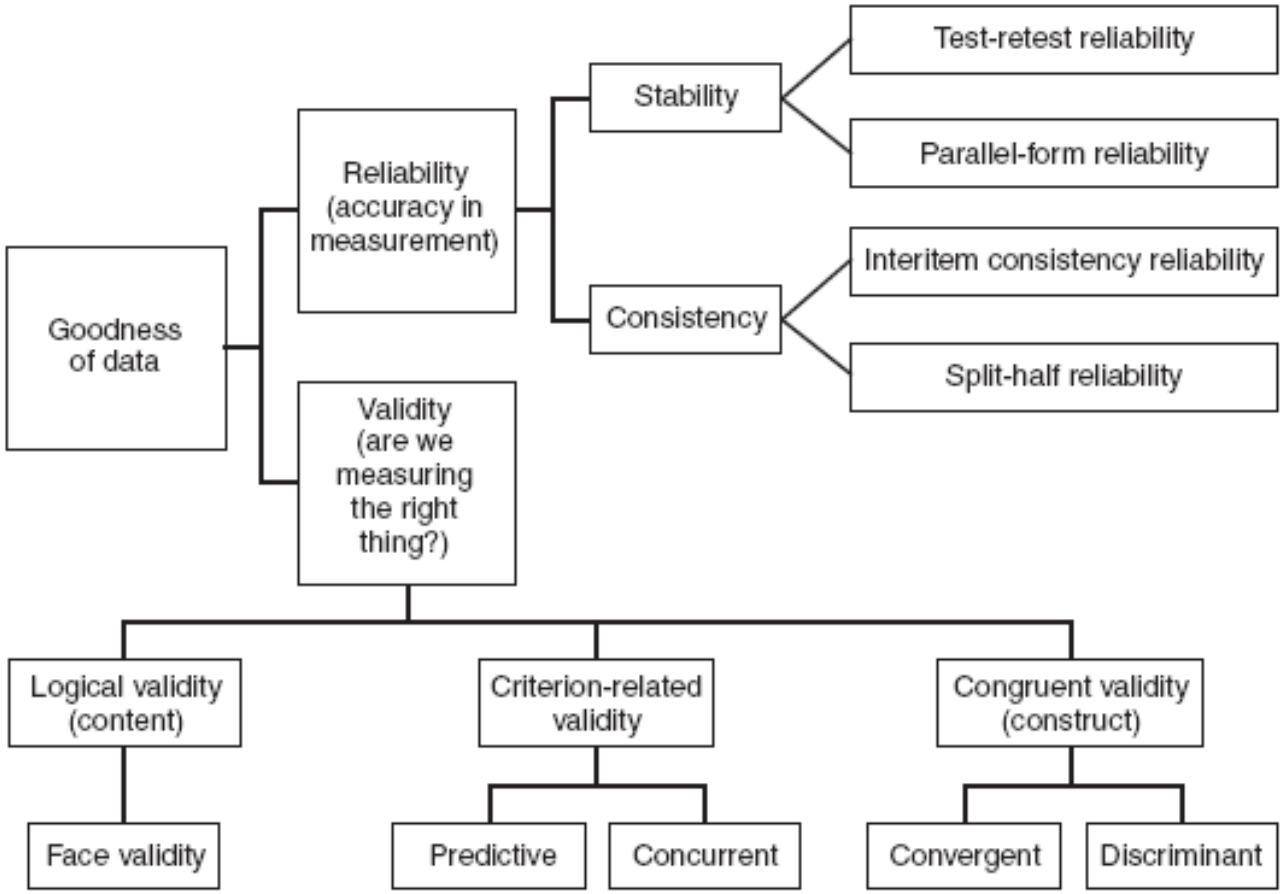


Figure 7.1: Testing goodness of measures: forms of reliability and validity.

Principles of measurement

These principles of measurement encompass:

- the scales and scaling techniques used in measuring concepts,
- the assessment of reliability and validity of the measures used.

Chapter 8

Data Collection Methods

116

Sources of Data

- **Primary data**: information obtained first-hand by the researcher on the variables of interest for the specific purpose of the study.

- Types of Primary Data:
  - Quantitative:
  - Qualitative
- Examples: individuals, focus groups, panels

- **Secondary data**: information gathered from sources already existing.

- Examples: company records or archives, government publications, industry analyses offered by the media, web sites, the Internet, and so on.

Quantitative Data

- **Quantitative data** are measures of values or counts and are expressed as numbers. It is about numeric variables.
- Examples:

1. I invest more in my work than I get out of it
   completely disagree 1 2 3 4 completely agree

2. I exert myself too much considering what I get back in return

completely disagree 1 2 3 4 completely agree

Qualitative Data

- **Qualitative data**: data in the form of words.

- Examples: interview notes, transcripts of focus groups, answers to open-ended questions, transcription of video recordings, accounts of experiences with a product on the internet, news articles, and the like.

Data Collection Methods, Settings, and Sources of Data

- **Data collection** methods include:
  - Interview:
    - face to face interviews,
    - telephone interviews,
    - computer-assisted interviews;
  - Questionnaires that are either personally administered, sent through the mail, or electronically administered;
  - Observation of individuals and events with or without videotaping or audio recording.
- As for the setting, data can be collected in:
  - the natural environment in which phenomena occur.
  - In Filed or lab experimental settings where variables are controlled and manipulated,
  - In the homes of the respondents, on the street, in mall.

Data Collection Methods, Settings, and Sources of Data

- **Some tips to follow while interviewing**
  - Establishing credibility and rapport, and motivating individuals to respond
  - The questioning technique
    - Funneling
    - Unbiased questions
    - Clarifying issues
    - Helping the respondent to think through issues
    - Taking notes

Personal Interview

- Advantages
  - Can clarify doubts about questionnaire
  - Can pick up non-verbal cues
  - Relatively high response/cooperation
  - Special visual aids and scoring devises can be used
- Disadvantages
  - High costs and time intensive
  - Geographical limitations
  - Response bias / Confidentiality difficult to be assured
  - Some respondents are unwilling to talk to strangers
  - Trained interviewers

Telephone Interview

- Advantages
  - Discomfort of face to face is avoided
  - Faster / Number of calls per day could be high
  - Lower cost

- Disadvantages
  - Interview length must be limited
  - Low response rate
  - No facial expressions

Self-administered

- Advantages
  - Lowest cost option
  - Expanded geographical coverage
  - Requires minimal staff
  - Perceived as more anonymous
- Disadvantages
  - Low response rate in some modes
  - No interviewer intervention possible for clarification
  - Cannot be too long or complex
  - Incomplete surveys

Principles of Questionnaire Design

- Definition

  A questionnaire is a pre-formulated, written set of questions to which the respondent records his answers

- Steps
  1. Determine the content of the questionnaire
  2. Determine the form of response
  3. Determine the wording of the questions
  4. Determine the question sequence
  5. The personal data of respondents.
  6. Write cover letter

1. Questionnaire content

- Framework

  Need information for all constructs in framework

- Measurement: Operationalizing
  - Objective construct:
    - 1 element/items

      => 1 question
  - Subjective construct:
    - multiple elements/items

      => multiple questions

2. Response format

- Closed vs. Open-ended questions
  - Closed questions
    - Helps respondents to make quick decisions
    - Helps researchers to code
  - Open-ended question
    - First: unbiased point of view
    - Final: additional insights
    - Complementary to closed question: for interpretation purpose
- Measurement: Response scales

3. Question Wording

- Avoid double-barreled questions
- Avoid ambiguous questions and words
- Avoid leading or biasing questions
- Social desirability
- Avoid recall depended questions

Double-Barreled Questions

- A question that lends itself to different possible responses to its subparts is called a double-barreled question.
- Such questions should be avoided and two or more separate questions asked instead.
- Example, “Do you think there is a good market for the product and that it will sell well?”
- Solution: it would be better to ask two questions:

(1) “Do you think there is a good market for the product?”

(2) “Do you think the product will sell well?”

Ambiguous Questions

- Questions about concepts or constructs before operationalization
- An example of such a question is “To what extent would you say you are happy?”

Leading or Biasing Questions

- Questions that lead the respondents to give the responses that the researcher would like them to give
- Example: “Don't you think that in these days of escalating costs of living, employees should be given good pay rises?”
- Solution :“To what extent do you agree that employees should be given higher pay raises?”

Loaded questions

- Another type of bias in questions occurs when they are phrased in an emotionally charged manner.
- An example of such a loaded question is asking employees: “To what extent do you think management is likely to be **vindictive** if the employees decide to go on **strike**?”

Social desirability

- Questions should not be worded such that they elicit socially desirable responses.
- Example: “Do you think that older people should be laid off?”
- Solution: “There are advantages and disadvantages to retaining senior citizens in the workforce. To what extent do you think companies should continue to keep the elderly on their payroll?”

Recall-dependent questions

- Some questions might require respondents to recall experiences from the past that are hazy in their memory.
- Answers to such questions might have bias.
- If an employee who has had 30 years' service in the organization is asked to state when he first started working in a particular department and for how long, he may not be able to give the correct answers and may be way off in his responses.
- A better source for obtaining that information would be the personnel records.

Question Wording

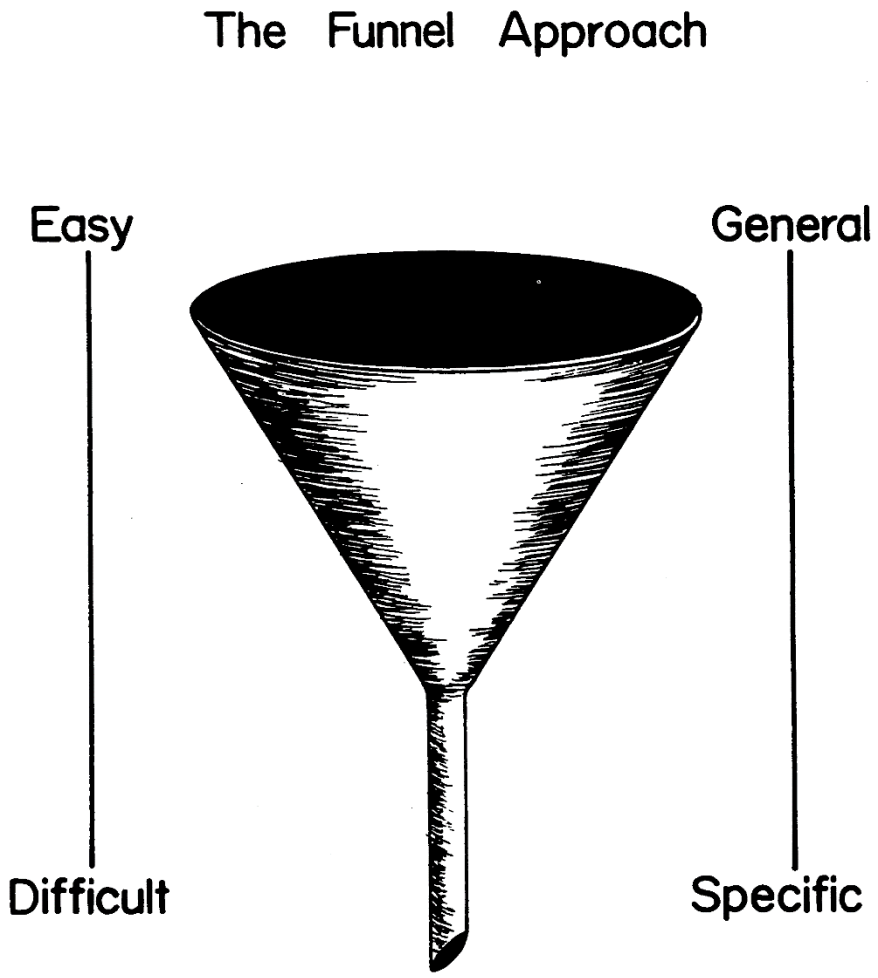
- **Use positive and negative statements**
  - it is advisable to include some negatively worded questions as well, so the tendency in respondents to mechanically circle the points toward one end of the scale is minimized.
  - Avoid double negatives
- Example:

➢ I feel I have been able to accomplish a number of different things in my job.

➢ I do not feel I am very effective in my job."

- The respondent is now shaken out of any likely tendency to mechanically respond to one end of the scale.

4. Question Sequence



Personal and sensitive data at the end

5. Personal data Demographic or personal data

- Demographic information can be sought either at the beginning or at the end of the questionnaire.
- Information of a very private and personal nature such as income, state of health, and so on, if considered at all necessary for the survey, should be asked at the end of the questionnaire, rather than the beginning.
- *Personal data* Demographic or personal data could be organized as in the example that follows.

Section One: About Yourself

Please circle the numbers representing the most appropriate responses for you in respect of the following

1. Your age (years)

1 Under 20
2 20–35
3 36–50
4 51–65
5 Over 65

2. Your highest completed level of education

1 Elementary school
2 High school
3 College degree
4 Graduate degree
5 Other (specify)

3. Your gend

1 Female
2 Male

4. Your marital status

1 Married
2 Single
3 Widowed
4 Divorced or separated
5 Other (specify)

5. Number of preschool children (under 5 years of age)

1 None
2 One
3 Two
4 Three or more

6. Age of the your care (ye

1 Under 5
2 5–12
3 13–19
4 Over 19
5 Not applicat

7. Number of years worked in the organization

1 Less than 1
2 1–2
3 3–5
4 6–10
5 Over 10

8.Number of other organizations worked for before joining this organization

1 None
2 One
3 Two
4 Three
5 Four or more

9.Present wo

1 First
2 Second
3 Third

10. Job status

1 Top management
2 Middle management
3 First-level supervisor
4 Nonmanagerial

General appearance or "getup" of the questionnaire

- it is also necessary to pay attention to how the questionnaire looks.
- An attractive and neat questionnaire with appropriate introduction, instructions, and well-arrayed set of questions and response alternatives will make it easier for the respondents to answer them.
- A good introduction, well-organized instructions, and neat alignment of the questions are all important. These elements are briefly discussed with examples.

6. Cover Letter

- The cover letter is the introductory page of the questionnaire

- It includes:
  - Identification of the researcher
  - Motivation for respondents to fill it in
  - Confidentiality
  - Thanking of the respondent

Other Methods of Data Collection

- **Observational surveys**
  - Nonparticipant-observer
  - Participant-observer
  - Structured versus unstructured observational studies
- **Biases in observational studies**

  Data observed from the researcher's point of view are likely to be prone to observer biases. Moreover, where several observers are involved, inter-observer reliability has to be established before the data can be accepted. Observer fatigue could also be a source of bias.

Observations

- Recording *pre-specified* behavioral patterns of people, objects and events in a systematic manner.

- Different types
  - Personal observation (e.g., mystery shopper)
  - Electronic observation (e.g., Video Recording, CCTV)

Other Methods of Data Collection

- Focus groups
- Static and dynamic panels
- Unobtrusive measures

Some Special Data Sources

- **Focus groups**: consist typically of eight to ten members with a moderator leading the discussions on a particular topic, concept, or product.
- Members are generally chosen on the basis of their familiarity with the topic on which information is sought.
- **Panel Interview**: is a group of people specifically selected by the researcher to elicit expert knowledge and opinion about a certain issue.
- Example: group of experts in IOT, Cloud Computing

Sampling

145

Relevant Terms

- *Population* refers to the entire group of people that the researcher wishes to investigate.

- An *element* is a single member of the population.

- A *sample* is a subset of the population. It comprises some members selected from it.

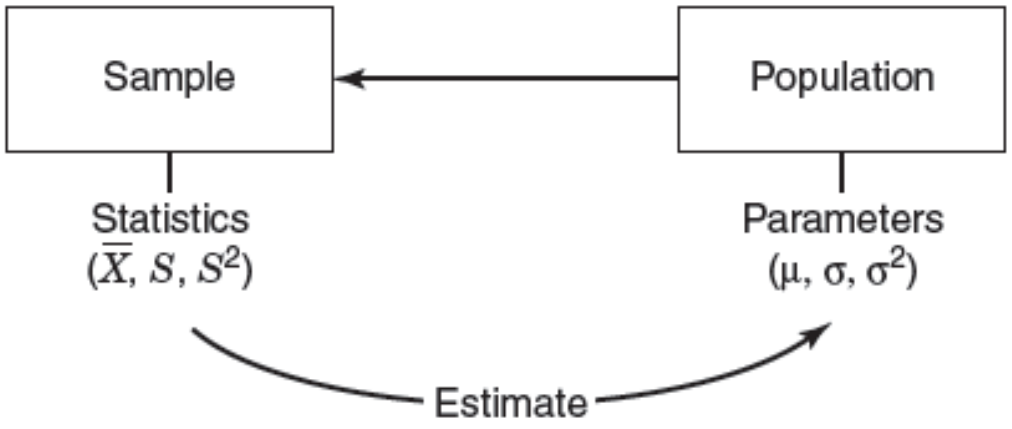
Sampling

- Sampling: the *process* of selecting a *sufficient* number of elements from the population, so that results from analyzing the sample may be *generalizable* to the population.
- Advantage of Sampling:
  - Less costs
  - Less time

Relevant Terms

- *Parameters:* the characteristics of the population such as μ (the population mean), σ (the population standard deviation).
- *Statistics:* the characteristics of the sample such as X (the sample mean), S (the sample standard deviation).

Statistics versus Parameters



The relation between sample and population

The Sampling Process

- Major steps in sampling:
  - Define the population.
  - Determine the appropriate sample size
  - Execute the sampling process

Defining the population

- Sampling begins with precisely defining the target population.
- The target population must be defined in terms of elements, geographical boundaries, and time.
- A researcher interested in saving habits of blue-collar workers in the fast food industry in Egypt, the target population might be all blue-collar workers in that industry throughout the country.
- For an advertising agency interested in reading habits of elderly people, the target population might be the Egyptian population aged 50 and over.

Determining the sample frame

- The **sampling frame** is a (physical) representation of all the elements in the population from which the sample is drawn.

- The payroll of an organization would serve as the sampling frame if its members are to be studied.

- The university registry containing a listing of all students, faculty, administrators, and support staff in the university during a particular academic year or semester could serve as the sampling frame for a study of the university population.

Determining the sampling design

- **Probability sampling**: elements in the population have equal probabilities to be chosen.
- **Nonprobability sampling:** the elements in the population do not have equal probabilities to be chosen.

Sampling Techniques

- Probability Sampling
  - Simple Random Sampling
  - Stratified Random Sampling
  - Cluster Sampling
- Nonprobability Sampling
  - Convenience Sampling
  - Judgment Sampling
  - Quota Sampling
  - Snowballing

Determining the sample size

- The decision about how large the sample size should be can be a very difficult one.
- The factors affecting decisions on sample size as:
  1. The research objective.
  2. The extent of precision desired (the confidence interval).
  3. The acceptable risk in predicting that level of precision (confidence level).
  4. The amount of variability in the population itself.
  5. The cost and time constraints.
  6. The size of the population itself.

Simple Random Sampling

- Procedure
  - Each element has a known and equal chance of being selected

- Characteristics
  - Highly generalizable
  - Easily understood
  - Reliable population frame necessary

Stratified Sampling

- Strata: is a level or class to which people are assigned according to their social status, job level, or income, etc..
- Procedure
  - Divide of population in strata (levels)
  - Include all strata
  - Random selection of elements from strata
- A president of a company is concerned about low motivational levels or high absenteeism rates among the employees.
- He can stratify the population of organizational members according to their job levels (managers, seniors, juniors).

Cluster Sampling

- Procedure
  - Divide of population in clusters
  - Random selection of clusters
  - Include all elements from selected clusters
- A specific type of cluster sampling is area sampling.
- If a company wants to survey its customers in Egypt.
- They can divide the entire country's population into cities (clusters)
- And further select cities with the largest customer number.

Sample size: guidelines

- In general: $30 < n < 500$
- Experiments: 15 to 20 per condition

Nonprobability sampling

- **Convenience sampling** refers to the collection of information from members of the population who are conveniently available to provide it.
- **Judgment sampling** design is used when a limited number or category of people have the information that is sought.
- **Quota sampling**, a second type of purposive sampling, ensures that certain groups are adequately represented in the study through the assignment of a quota.

Quantitative Data Analysis

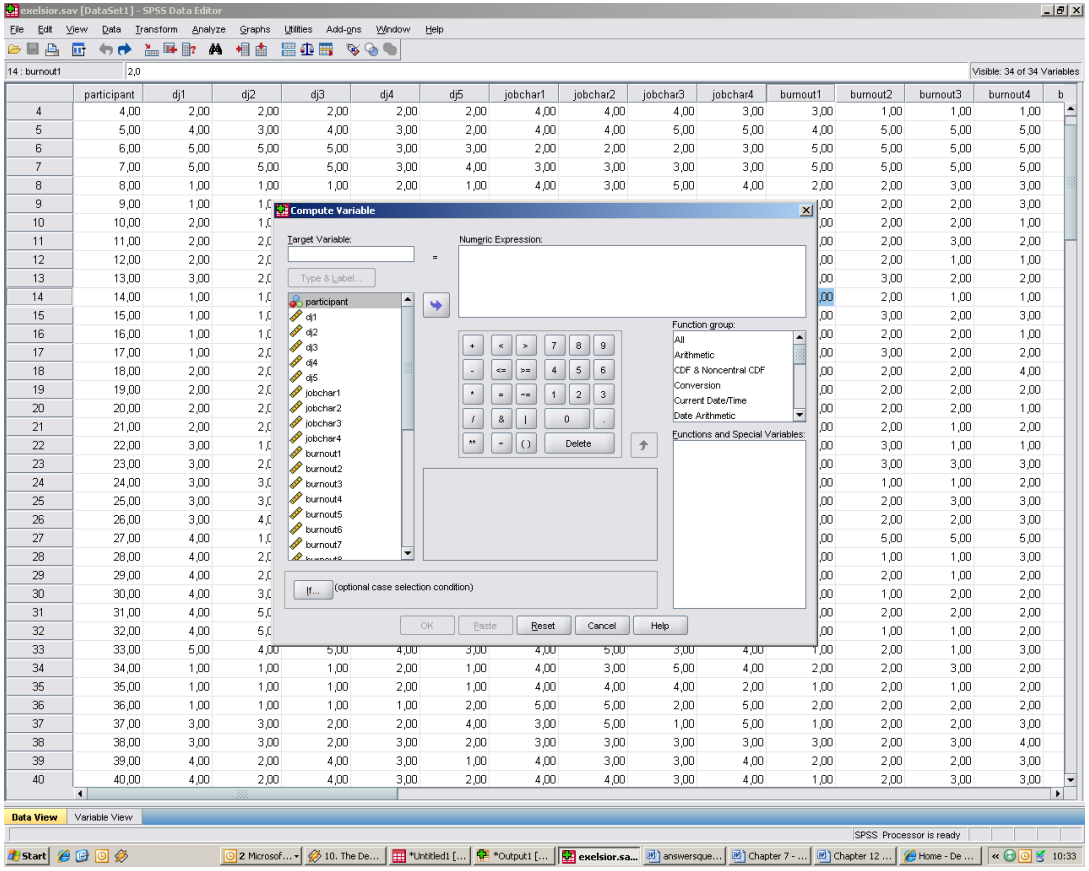
161

Getting the Data Ready for Analysis

- Data coding: assigning a number to the participants' responses so they can be entered into a database.

- Data Entry: after responses have been coded, they can be entered into a database. Raw data can be entered through any software program (e.g., SPSS)

Transforming Data



Transforming Data

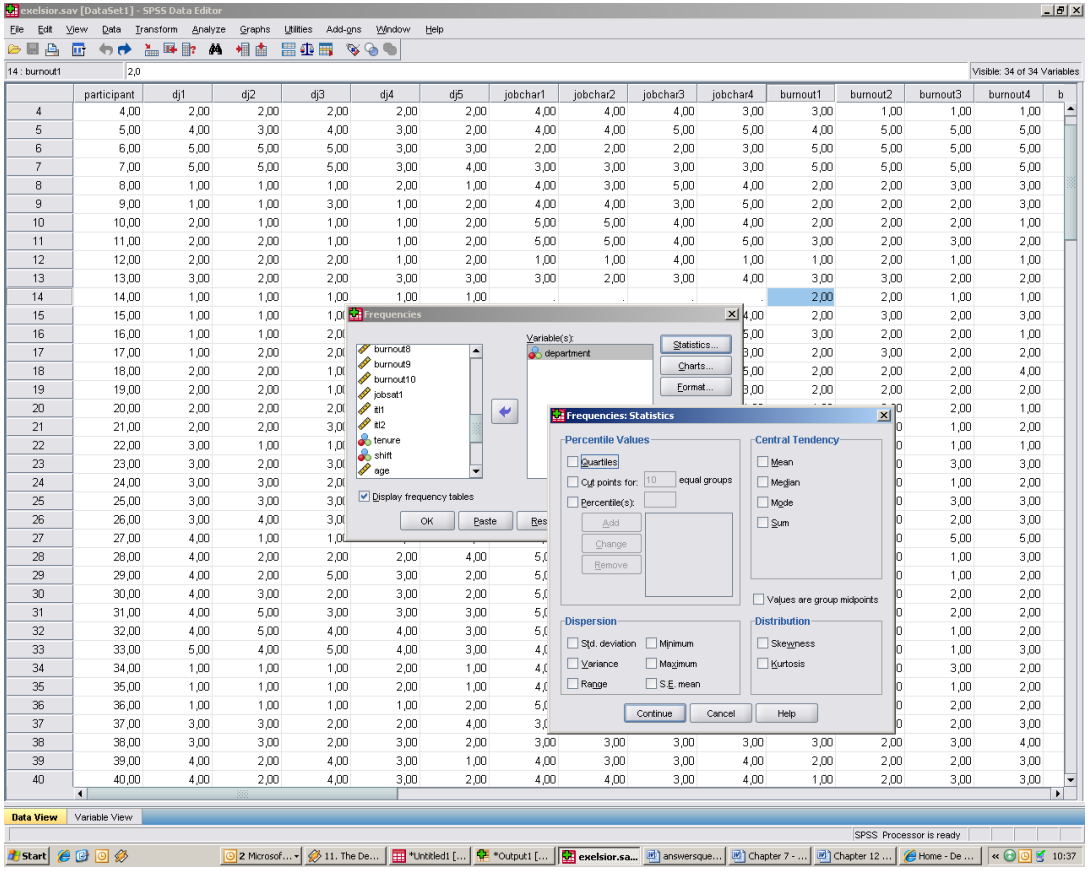
Perceived_Value			Purchase_Intention			
You purchase this product	You purchase this product	You purchase this product	I would intend to buy greer	My willingness to buy gree	I am likely to purchase any	I have a high intention to buy
Agree	Neutral	Agree	Strongly agree	Strongly agree	Neutral	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly agree	Strongly agree	Strongly agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Agree	Agree	Agree	Agree	Agree	Neutral	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Strongly Agree	Strongly Agree	Agree	Agree	Strongly agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly agree	Strongly agree	Strongly agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Neutral	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Strongly Agree	Agree	Agree	Agree	Strongly agree	Strongly Agree	Strongly Agree
Agree	Agree	Neutral	Agree	Agree	Agree	Agree
Neutral	Strongly Agree	Strongly agree	Strongly disagree	Strongly disagree	Strongly Disagree	Strongly Disagree
Agree	Agree	Neutral	Agree	Agree	Agree	Agree
Neutral	Neutral	Agree	Neutral	Neutral	Neutral	Neutral
Strongly Agree	Strongly Agree	Strongly agree	Strongly agree	Strongly agree	Strongly Agree	Strongly Agree
Neutral	Agree	Neutral	Neutral	Neutral	Neutral	Neutral
Agree	Agree	Agree	Agree	Agree	Strongly Agree	Agree
Strongly Agree	Strongly Agree	Neutral	Strongly agree	Strongly agree	Agree	Strongly Agree
Agree	Agree	Agree	Agree	Neutral	Neutral	Neutral

Data | Sheet2 | Form Responses 1 (2)

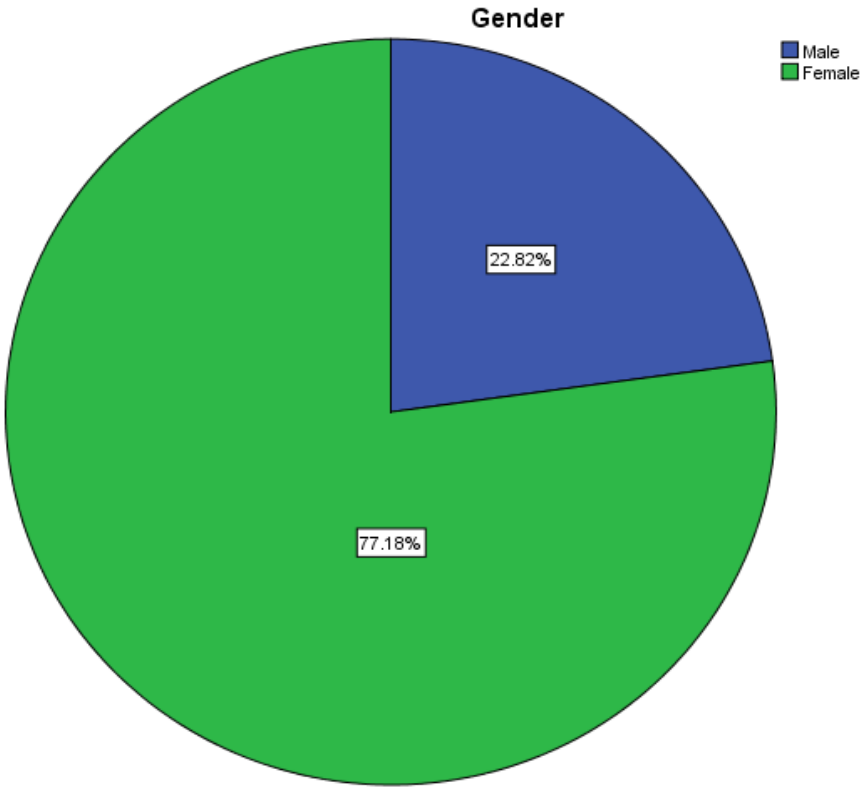
Transforming Data

	Intention_1	Intention_2	Intention_3	Intention_4
5	5	5	5	
5	5	5	5	
4	4	4	3	
4	4	4	4	
5	5	5	5	
5	5	5	4	
5	5	5	3	
3	3	3	3	
5	5	5	5	
4	4	4	4	
3	3	3	3	
4	4	4	4	
3	4	3	4	
4	3	4	3	
4	3	3	4	
5	4	4	4	
4	4	4	4	
3	3	3	3	

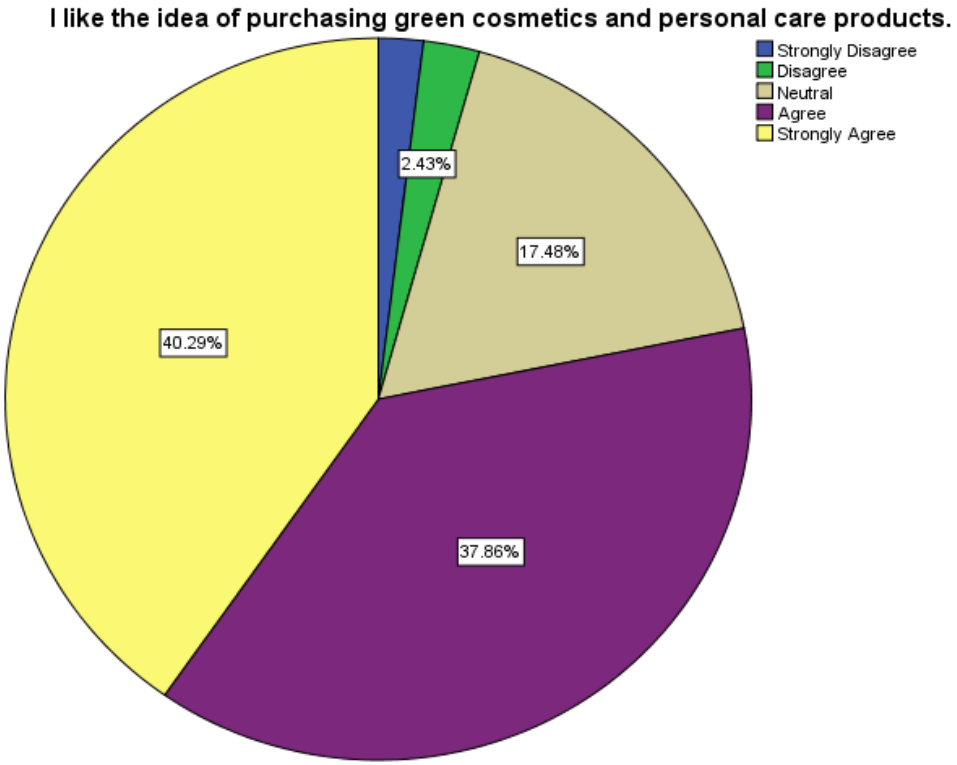
Frequencies



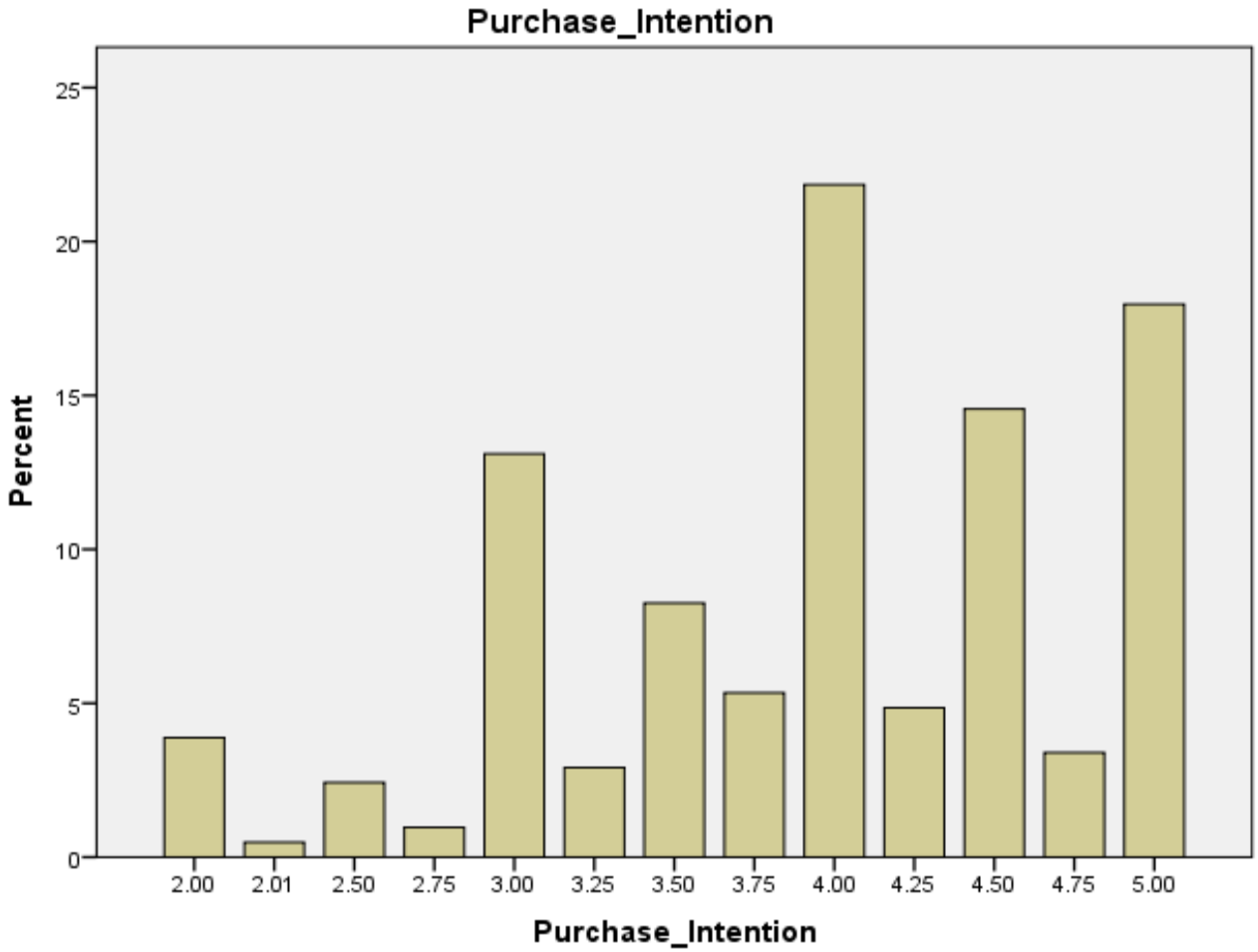
Descriptive Analysis



Descriptive Analysis



Descriptive Analysis



Correlation

- Correlation Factor : -1 to 1
- Positive correlation greater than 0 and less then 1
- Negative correlation less than 0 and greater then -1

Testing Hypotheses about Two Unrelated Means

- Independent samples *t*-test: is done to see if there are any significant differences in the means for two groups in the variable of interest.
- Ho (Null Hypothesis):
  - There is no difference between males and females in relation to employees satisfaction
- Ha (Alternative Hypothesis):
  - There is a difference between males and females in relation to employees satisfaction.

Comparing 2 groups

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.474	1.132		7.484	.000
	COMM_INTER	.820	.018	.977	45.479	.000

significant effect on difference

Testing Hypotheses for more than 2 groups

- *ANOVA*: examines differences between the means of more than 2 groups.
- Ho (Null Hypothesis):
  - There is no difference between management levels in relation to using MIS system.
- Ha (Alternative Hypothesis):
  - There is a difference between management levels in relation to using MIS system.

Comparing more than 2 groups

ANOVA

TIS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.008	4	1.252	3.423	.011
Within Groups	40.228	110	.366		
Total	45.236	114			

significant effect on difference

Correlation Coefficient

		Price_Sensitivity	Purchase_Intention
Price_Sensitivity	Pearson Correlation	1	.712**
	Sig. (2-tailed)		**.000**
	N	206	206
Purchase_Intention	Pearson Correlation	.712**	1
	Sig. (2-tailed)	**.000**	
	N	206	206

**. Correlation is significant at the 0.01 level (2-tailed).

Qualitative Data Analysis

176

Analysis of Qualitative Data

- The analysis of qualitative data is aimed at making valid inferences from the often overwhelming amount of collected data.

- Steps:
  - data reduction
  - data display
  - drawing and verifying conclusions

Data Reduction

- Coding: the analytic process through which the qualitative data that you have gathered are reduced, rearranged, and integrated to form theory.

- Categorization: is the process of organizing, arranging, and classifying coding units.

Data Display

- Data display: taking your reduced data and displaying them in an organized, condensed manner.

- Examples: charts, matrices, diagrams, graphs, frequently mentioned phrases, and/or drawings.

Drawing Conclusions

- At this point where you answer your research questions by determining what identified themes stand for, by thinking about explanations for observed patterns and relationships, or by making contrasts and comparisons.

Examples


أسوأ تجربة وندمت الكمية قليلة جدا جدا جدا صوص الجبنة خفيف جدا ميه وقطعتين جمبري وقطعتين كابوريا في الطبق التغليف سيء وطبق الفراخ برضه قطعة ومتقطعة صغير والباقي بطاطس حرام تمنه بصراحة واخر مرة
01
Food quality can be better
03
the time delivery is so bad and time of dilevery late
02
the order come wrong i ordered cordon bleu and the thing that came is shish tawook
04
very poor value for money white sauce pasta was just boiled pasta with very little sauce and vegetables were raw cheese tagn had raw meat crispy chicken poor seasoning
03

Examples

Code System			Frequency		Code System			Frequency
Code System					357			
Before COVID					After COVID			
		Health Danger	2				Health Danger	
	28%	Suitable Price	11			33%	Suitable Price	1
	72%	High Price	28			67%	Highe Price	2
	88%	**Slow Delivery (Ticket time)**	**7**			**83%**	**Slow Delivery**	**5**
	13%	**Fast Delivery (Ticket time)**	**1**			**17%**	**Fast Delivery**	**1**
	23%	Bad Ambiance	7			25%	Bad Ambiance	1
	77%	Good Ambiance	24			75%	Good Ambiance	3
	40%	**Bad Service**	**22**			**20%**	**Bad Service**	**1**
	60%	**Good Service**	**33**			**80%**	**Good Service**	**4**
	30%	Quantity Good	3			25%	Quantity Good	1
	70%	Quantity Small	7			75%	Quantity Small	3
	72%	**Good Quality**	**115**			**62%**	**Good Quality**	**16**
	6%	**Moderate Quality**	**10**			**0%**	**Moderate Quality**	
	22%	**Low Quality**	**35**			**38%**	**Low Quality**	**10**
		Good Packing	0			50%	Good Packing	2
		Bad Packing	0			50%	Bad Packing	2

The Research Report

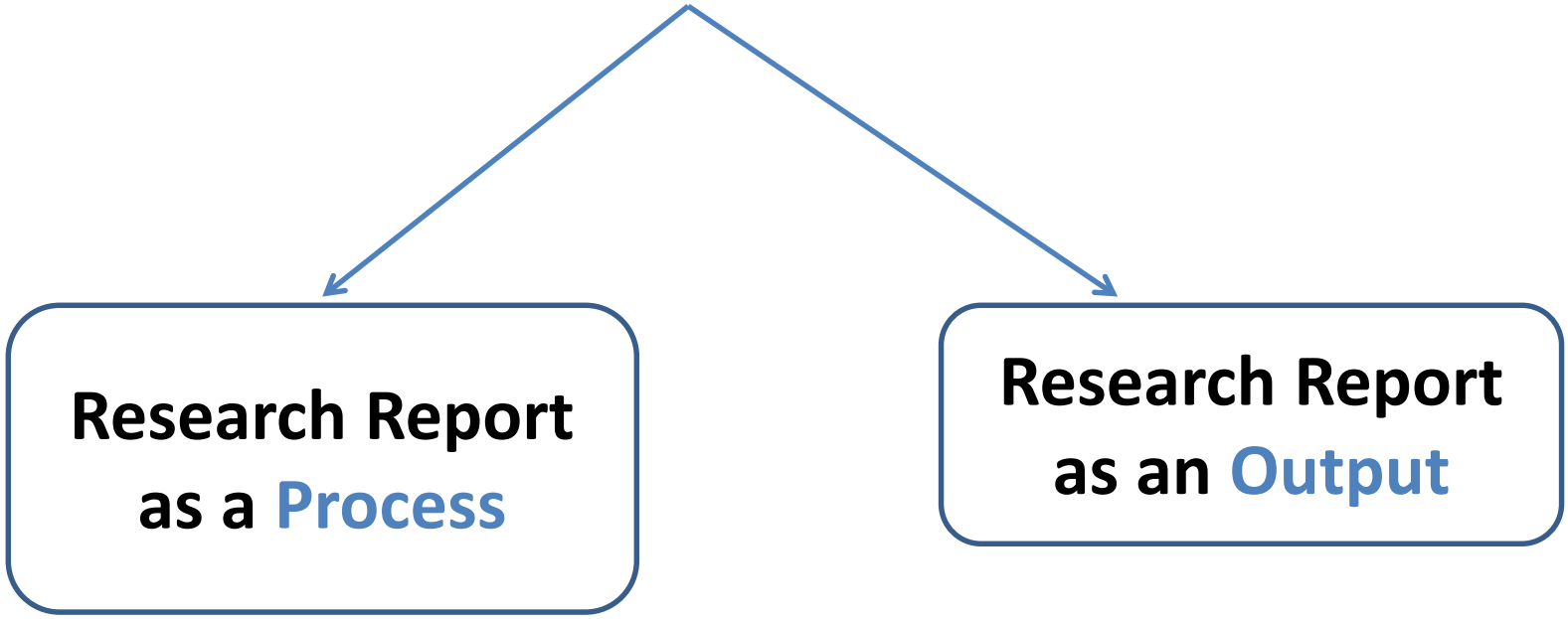
Characteristics of a Well-Written Report

- Clarity
- Conciseness
- Coherence
- The right emphasis on important aspects
- Meaningful organization of paragraphs
- Smooth transition from one topic to the next
- Apt choice of words
- Specificity

The research document

- Title page
- Contents page
- Acknowledgements - personal thanks to those who have helped you
- Executive summary or abstract – why, how and what?
- Introduction
- Literature review – what others have said about this problem
- Research method – what considerations were made when choosing a way to conduct this study
- Data – what have you found from your primary data collection?
- Discussion – comparing literature to data section
- Conclusions - answers to your research questions, limitations and future study advice
- References - cited work - use appropriate referencing – APA 6.
  Bibliography - sources used but not cited
- Appendices
-

Research Project



Title of the research

- It should be concise, descriptive and informative.
- Titles should clearly indicate the independent, dependent and /or mediating variables.
- It is important to specify what population will be investigated.
- The aim of a title is to capture the reader's attention to the research problem being investigated

Example

The Impact of Employee Engagement on Employee Performance in the Egyptian Manufacturing Companies

A Dissertation Proposal
Submitted in Partial Fulfillment of the Requirement
For the DBA Degree

By:
Your Name

Supervised By:
Your Supervisor

2021

Content Page

- Consider setting up any Headers or Footers here
- Section the Report: Part I, Part II, Part III
- State what each part is about e.g. Part I – Overview of relevant Information Security Standards
- Use headings and sub-headings where applicable
- Include the Appendices e.g. Appendix I - Company Accounts, Appendix II - ……

Executive Summary/ Abstract

- Page Numbering starts here
- Executive Summary usually about one half or two thirds of a page
- **What is it?** It is a summary of the report
- **When did I write it?** When you have completed your report!
- **Who reads it?** It will be read by those who do not have time to read the full report

The Introduction

- Setting the research problem/ background – Why? What? Who? Where? When? How?
- A statement of purpose(s), objectives or aims
- Background information on the report topic
  - Why is this report important etc.
  - What “problem” are you trying to solve
- Report structure statement at the end of introduction – how are you going to structure the “solution”

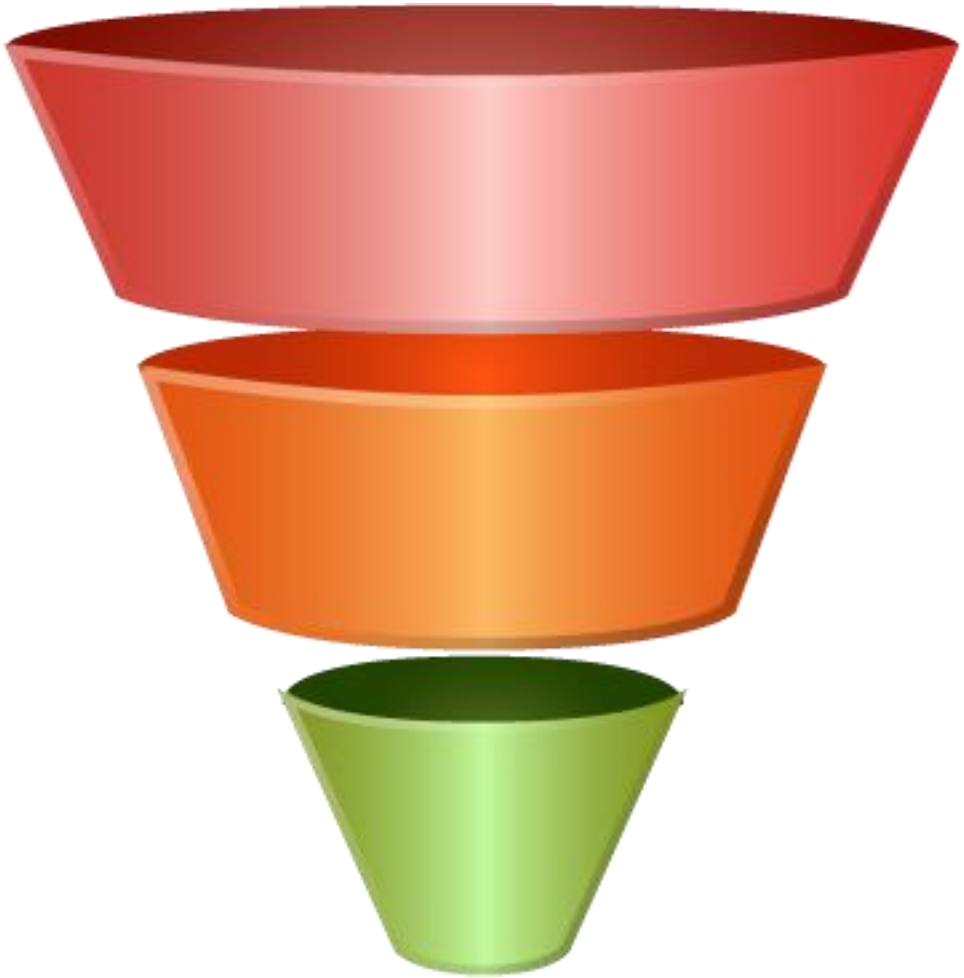
Literature review

- In this section what is already known about the topic is written including.
- You do not need to report on every published study in the area of your research topic.
- Choose those studies which are most relevant and most important.

Literature review

- Reviews of the literature are not summaries, they are arguments that:
- There is a gap that needs filling;
- You have sound reasons for believing your hypotheses are likely to be true;
- Your methods have been well thought through in relation to your research goals.

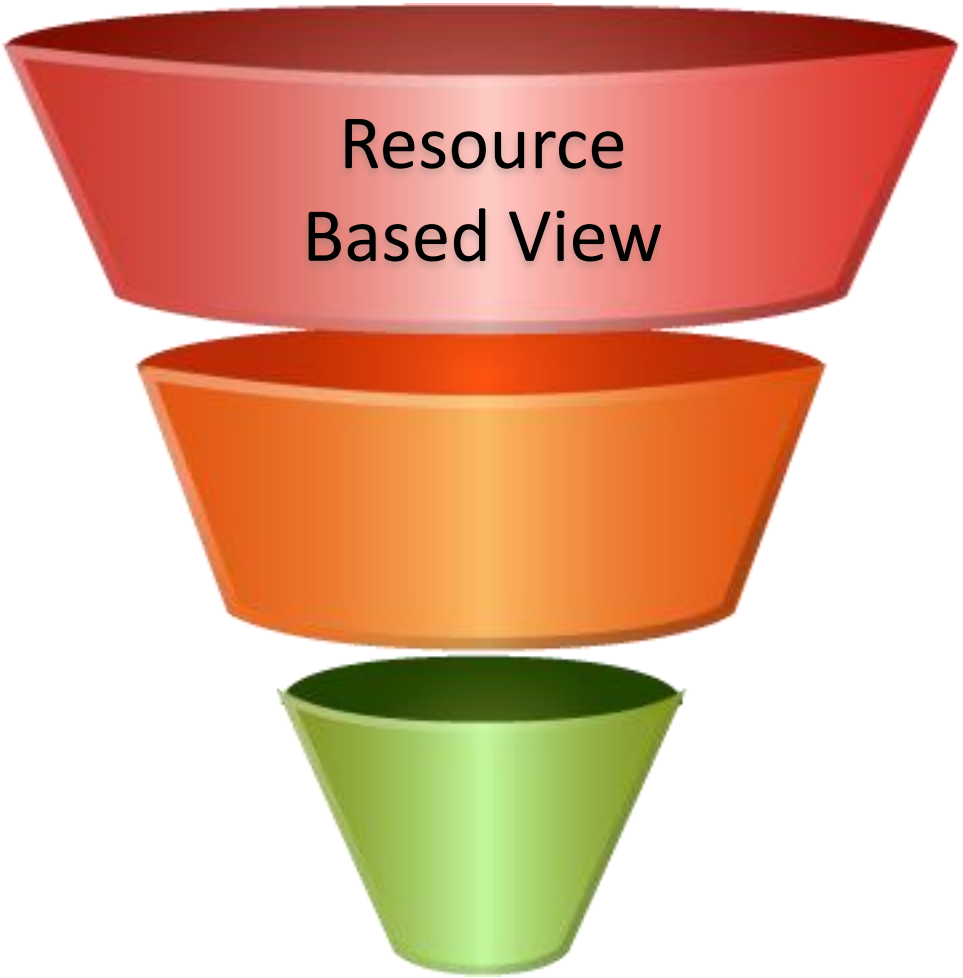
The narrative of a good Literature Review



Reader knows

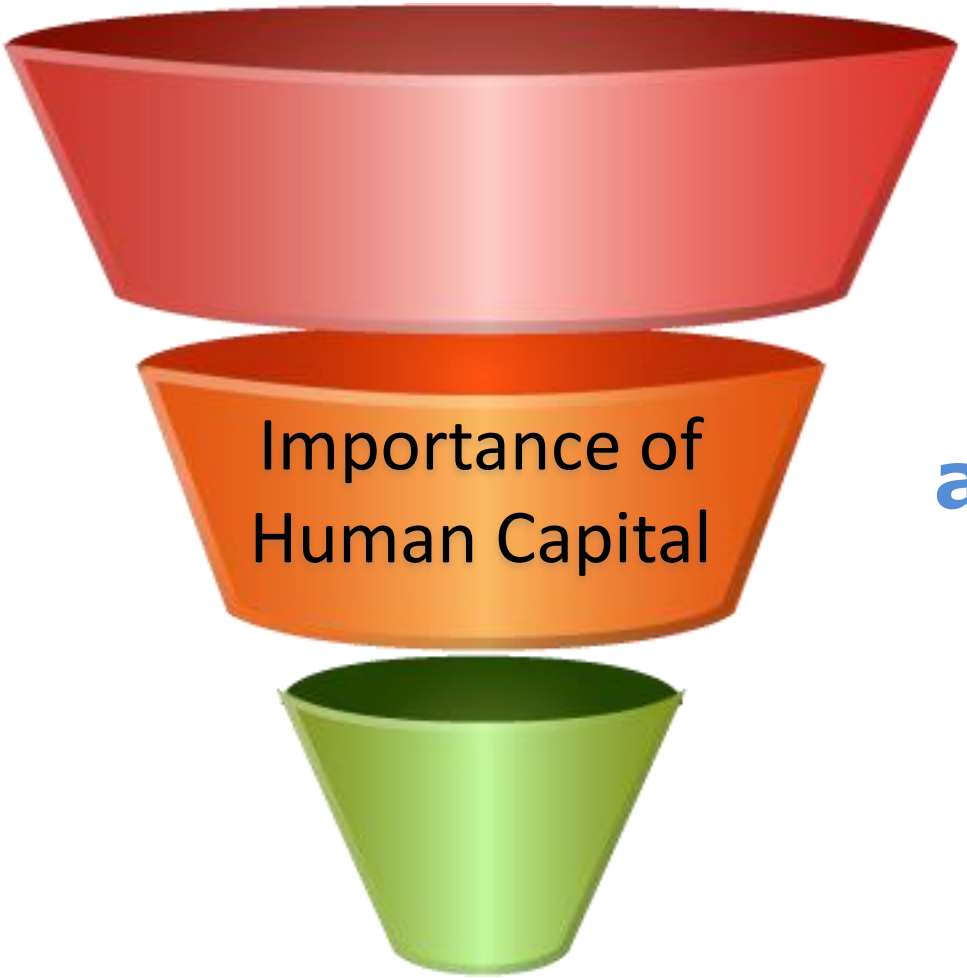
Reader doesn't know

The narrative of a good Literature Review



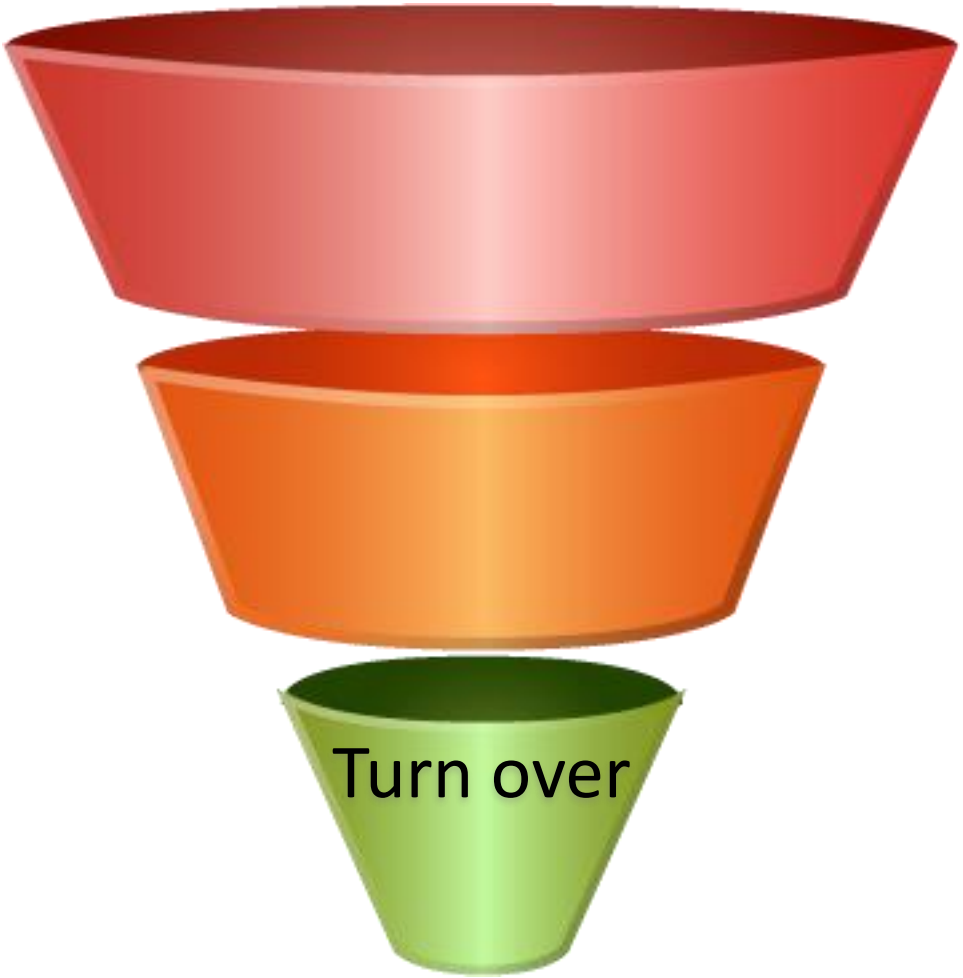
General Topic

The narrative of a good Literature Review



Focus on certain aspects in field of interest

The narrative of a good Literature Review



End with gap analysis

Aim / Purpose

- Two types of objectives
  - General/broad/overall;
  - Specific
- The aim is about what you hope to do, your overall intention in the project.
- It's what you want to know.
- An aim is therefore generally broad.
- The Aim is the *WHAT* of the research, and the objective is the *HOW*.

Objectives

- The objectives are the specific steps you will take to achieve your aim.
- Research objectives are the goals to be achieved by conducting the research.

- Objectives should be:
  - Logical and coherent
  - Feasible and Realistic,
  - Contextual/consistent to the title
  - Distinctive, quantifiable, measurable
  - Expressed in simple language, precise, self explanatory

Objectives

- How should objectives be stated?
- Objectives should be stated using “action verbs” that are specific enough to be measured:
- e.g. To determine …, To compare…, To verify…, To investigate…, To describe…, etc.
- Do not use vague non-action verbs such as: To appreciate, To understand… To believe.

Example

- **General objective (Aim / Purpose):**
  - To examine the factors affecting employees turnover.
- **Specific objectives:**
  - To investigate the impact of employee engagement on employee turnover
  - To investigate the impact of employee satisfaction on employee turnover.
  - To investigate the role of mangers in employee turnover.

Significance of the study

- Academic Significance.
- Practical Significance.

Questions and/or hypotheses

- A hypothesis can be defined as a tentative prediction or explanation of the relationship between two or more variables.
- Unambiguous prediction of expected outcomes
- Null and Alternative Hypothesis
- Guide/lead the research

Questions and/or hypotheses

- Example:
- Ho (Null Hypothesis):
  - There is no relation between employee engagement and employee performance.
- H_A: Alternative Hypothesis
  - There is a relation between employee engagement and employee performance.
  - There is positive relation between employee engagement and employee performance

Methodology

- Overview of the selected approach
- Sampling design.
- Justify your method choice.
- Instrumentation and Operational definitions of terms used.
- Unit of Analysis.
- Data Collection techniques.
- Data processing, analysis, interpretation techniques.
- Interpretation.

Writing conclusions

- Conclusions referring to
  - research questions
  - research objectives (outputs)
  - research aims (outcomes)
- Recommendations
  - who are your findings aimed at and who do you want them to be used?
  - How are you suggesting to resolve the research problem?
- Limitations of your study
- Suggestions for future work in the area
- Reflection on the research process adopted

Basic writing skills

- Top down:
  - Start with a draft structure and fill out the sections and paragraphs
- Bottom up:
  - Write and then re-format and re-structure to present a logical flow of your work
- **PDCA:**
  - Pre-write
  - Draft
  - Check
  - Act “Submit your work"

Writing style

- Reports are written in third person form, that is, the use of “I” or “We” and their respective cases are not used
- Instead of writing *“I found that ….”* write *“It was evident that ….” “The statistics revealed that ….”*
- There are exceptions such as personal reflections etc

APA referencing

- Difference between referencing and bibliography
- Author (year) – citation (Author, year)
- E.g. Bell (2010) in the text and make a full reference at the end of the document:
  - Bell, F. (2010) Learning to reference. Hannagan 5th edition: London
- Full reference at the back of your report
- Free tools available that can help:
  - Medley
  - End Note

Last sections of your report

- References
- Bibliography
- Appendix

Plagiarism

- Citing others work is good – evidence of research
- Using someone else's work without attribution – very bad practice and carries substantial penalties
- Learn to paraphrase and reference your sources