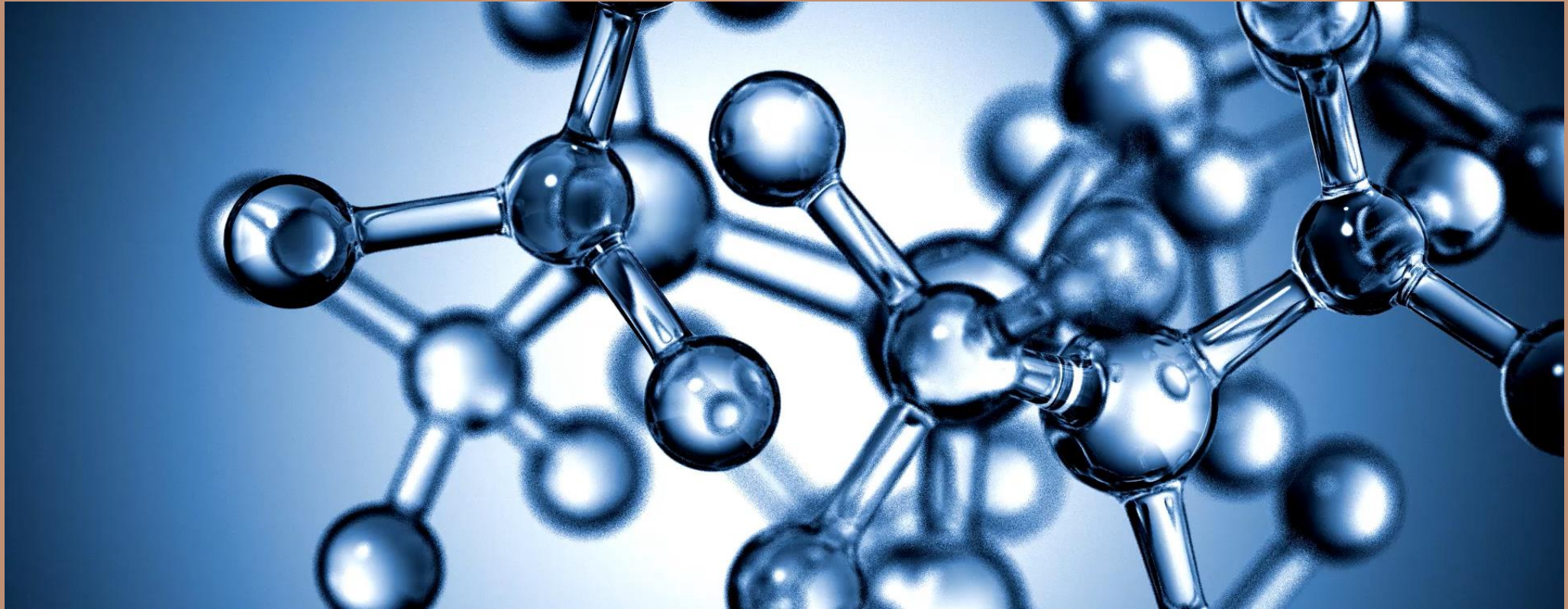


APPLYING SCIENTIFIC THINKING TO MANAGEMENT PROBLEMS





SOURCES OF KNOWLEDGE

- Empiricists attempt to describe, explain, and make predictions through observation
- Rationalists believe all knowledge can be deduced from known laws or basic truths of nature
- Authorities serve as important sources of knowledge, but should be judged on integrity and willingness to present a balanced case

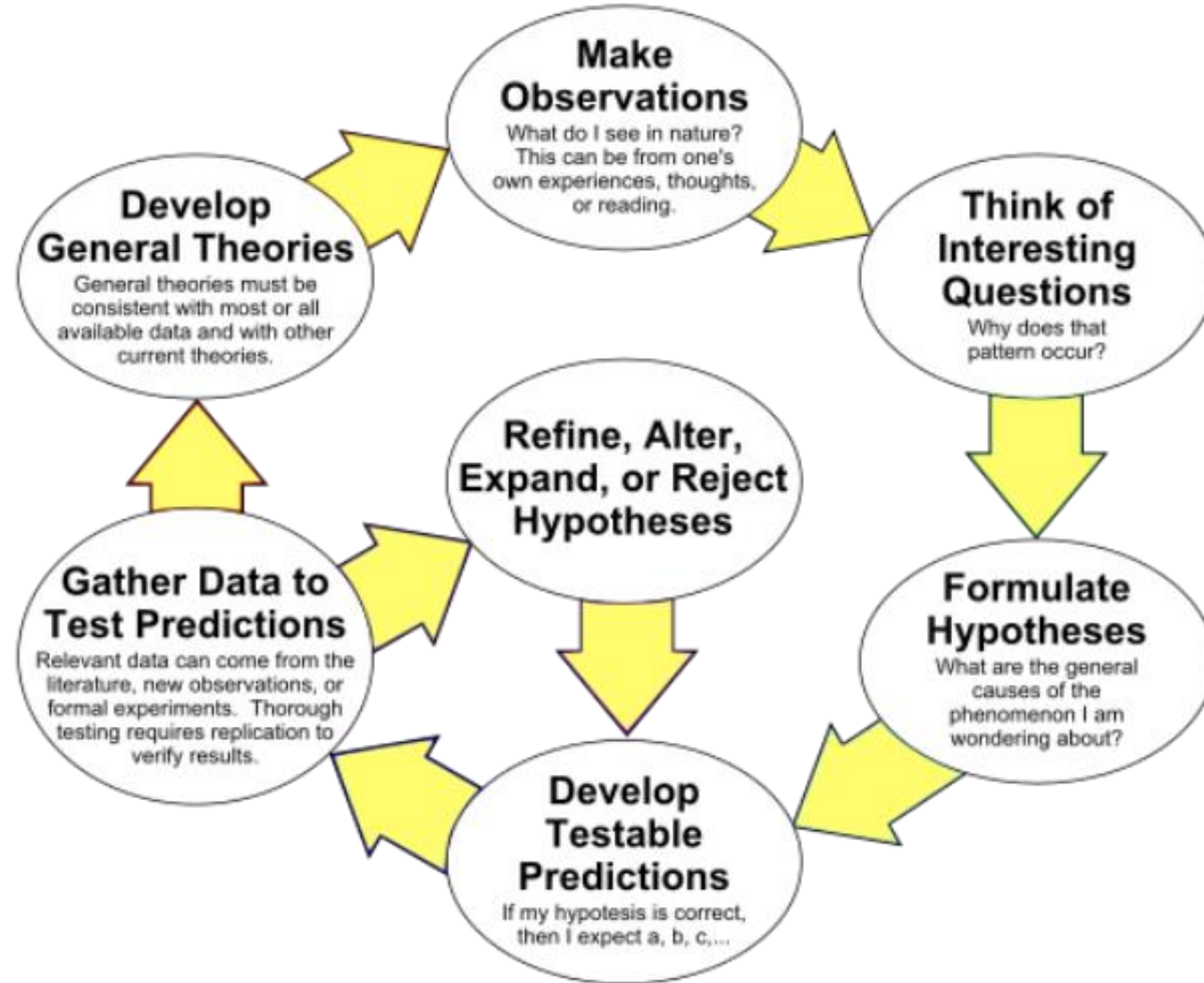
THE ESSENTIAL TENETS OF SCIENCE

- Direct observation of phenomena
- Clearly defined variables, methods, and procedures
- Empirically testable hypotheses
- Ability to rule out rival hypotheses
- Statistical justification of conclusions
- Self-correcting process

An ongoing process?



The Scientific Method as an Ongoing Process



WAYS TO COMMUNICATE

Exposition

descriptive statements that merely state and do not give reason

Argument

allows us to explain, interpret, defend, challenge, and explore meaning

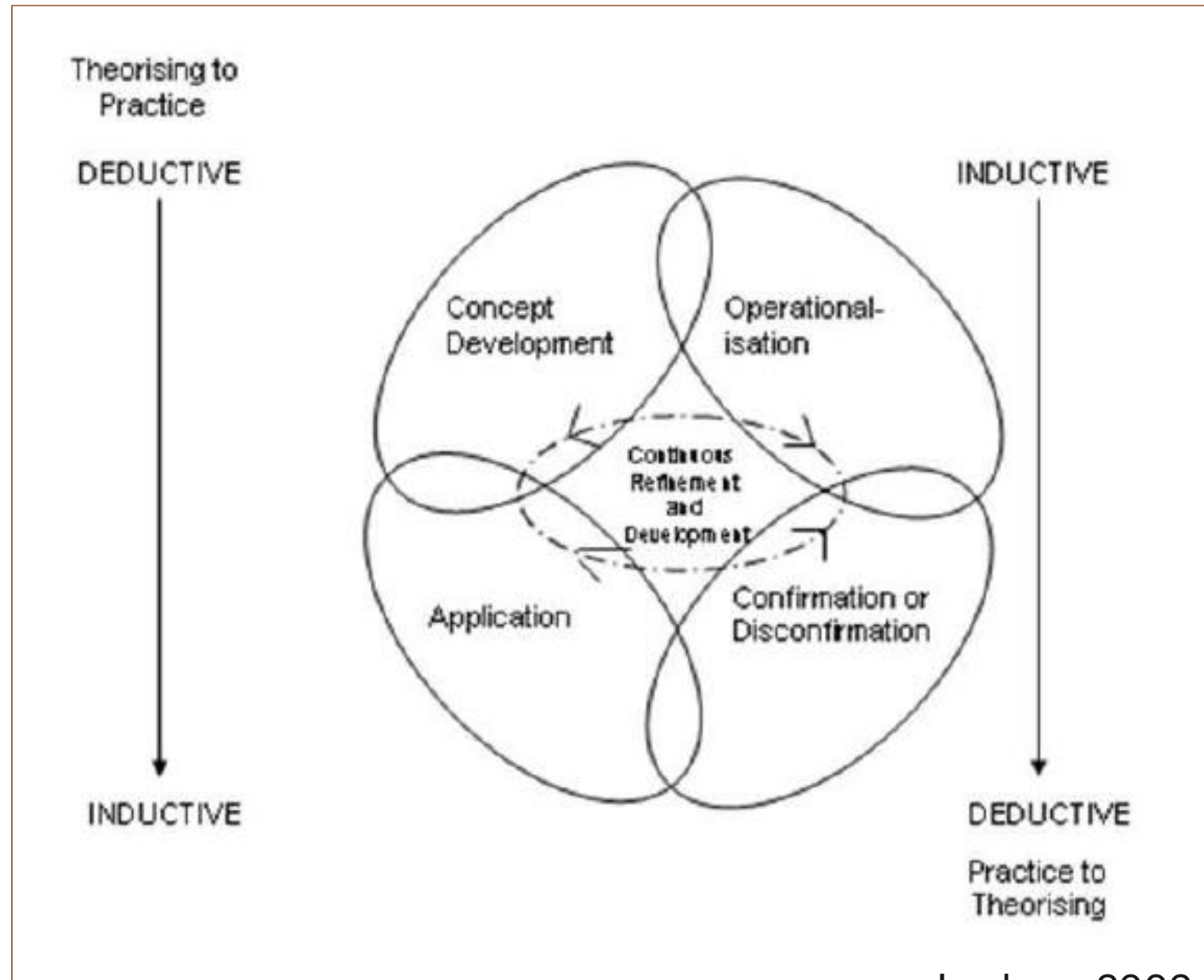
IMPORTANT ARGUMENTS IN RESEARCH

Deduction is a form of inference that purports to be conclusive

Induction draws conclusions from one or more particular facts



The general method of theory-building research in applied disciplines

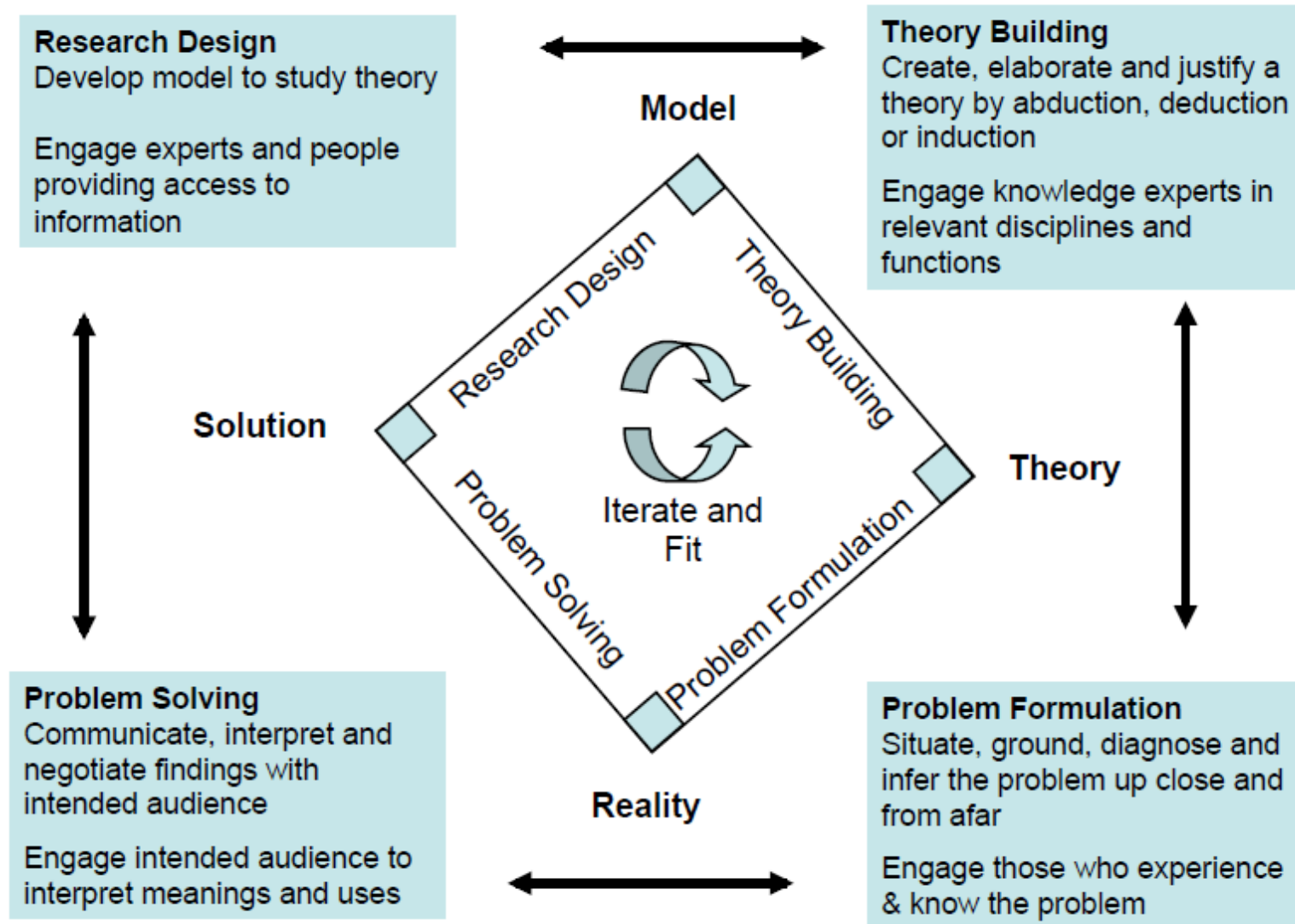




THE BUILDING BLOCKS OF THEORY

- Concepts
- Constructs
- Definitions
- Variables
- Propositions and Hypotheses
- Theories
- Models

PRACTICING ENGAGED SCHOLARSHIP

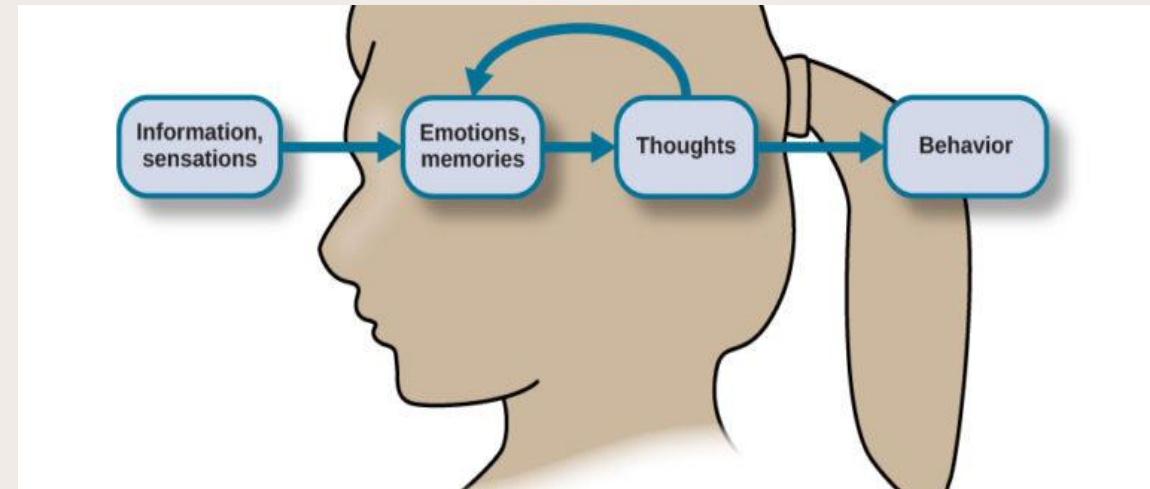


Adapted by Gray et al., 2011,
from Van De Ven, 2007

UNDERSTANDING CONCEPTS

A concept is a bundle of meanings or characteristics associated with certain events, objects, conditions, situations, and behaviors

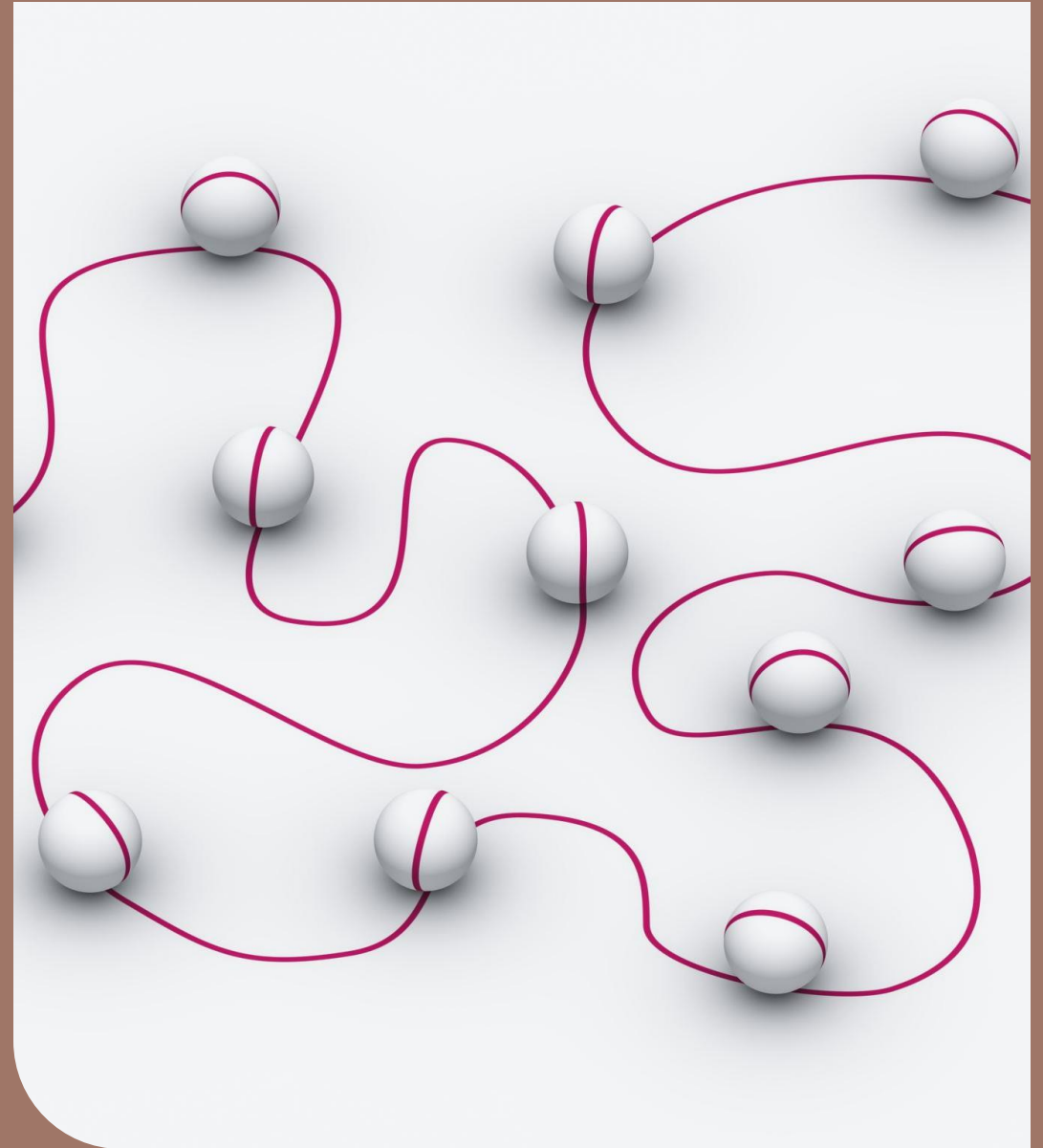
Concepts have been developed over time through shared usage



UNDERSTANDING CONCEPTS

The success of research hinges on:

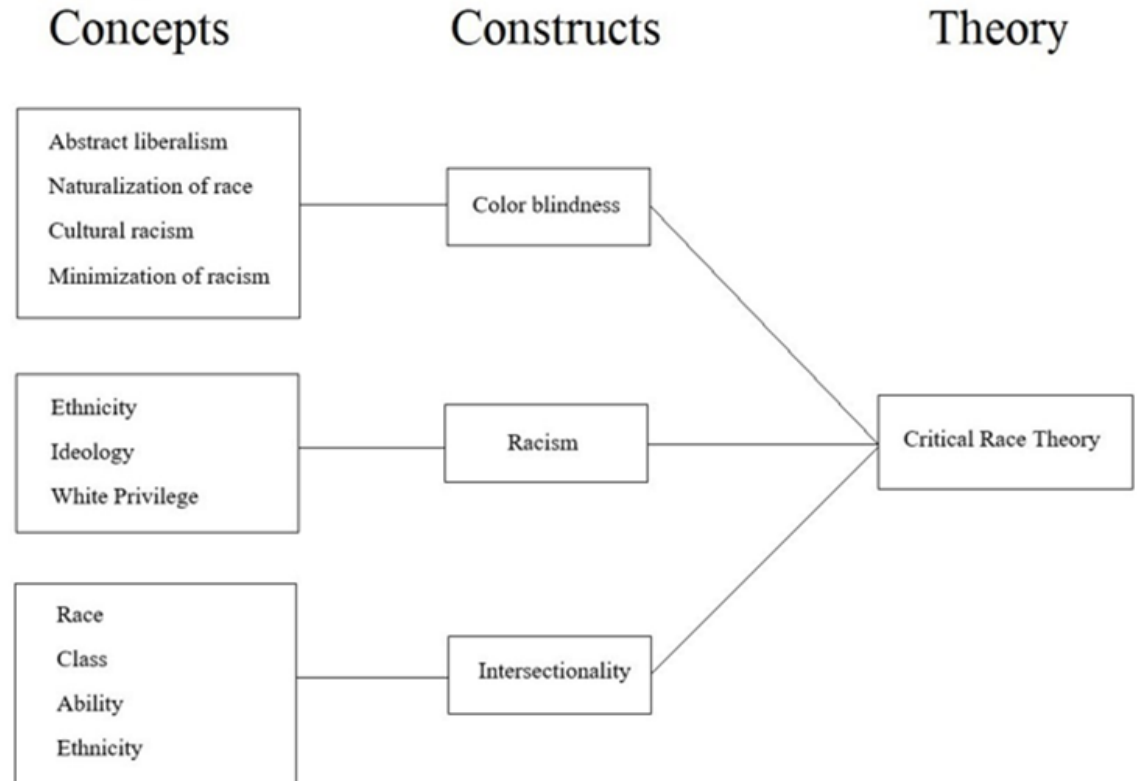
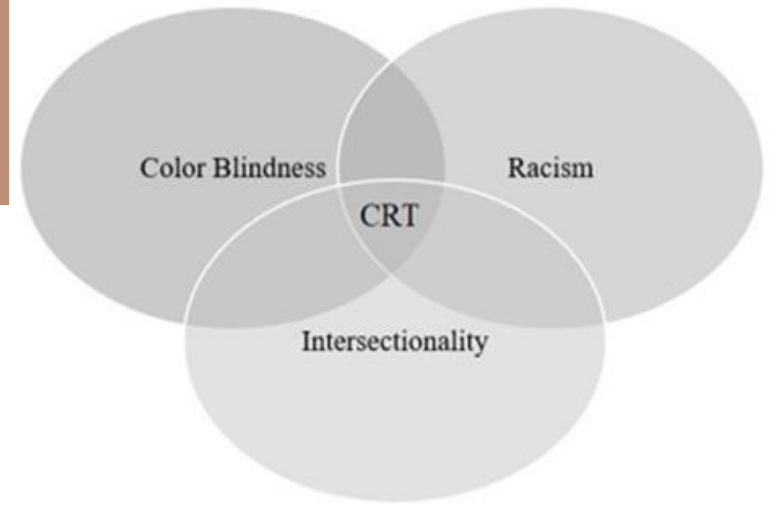
- how clearly, we conceptualize
- how well others understand the concepts we use



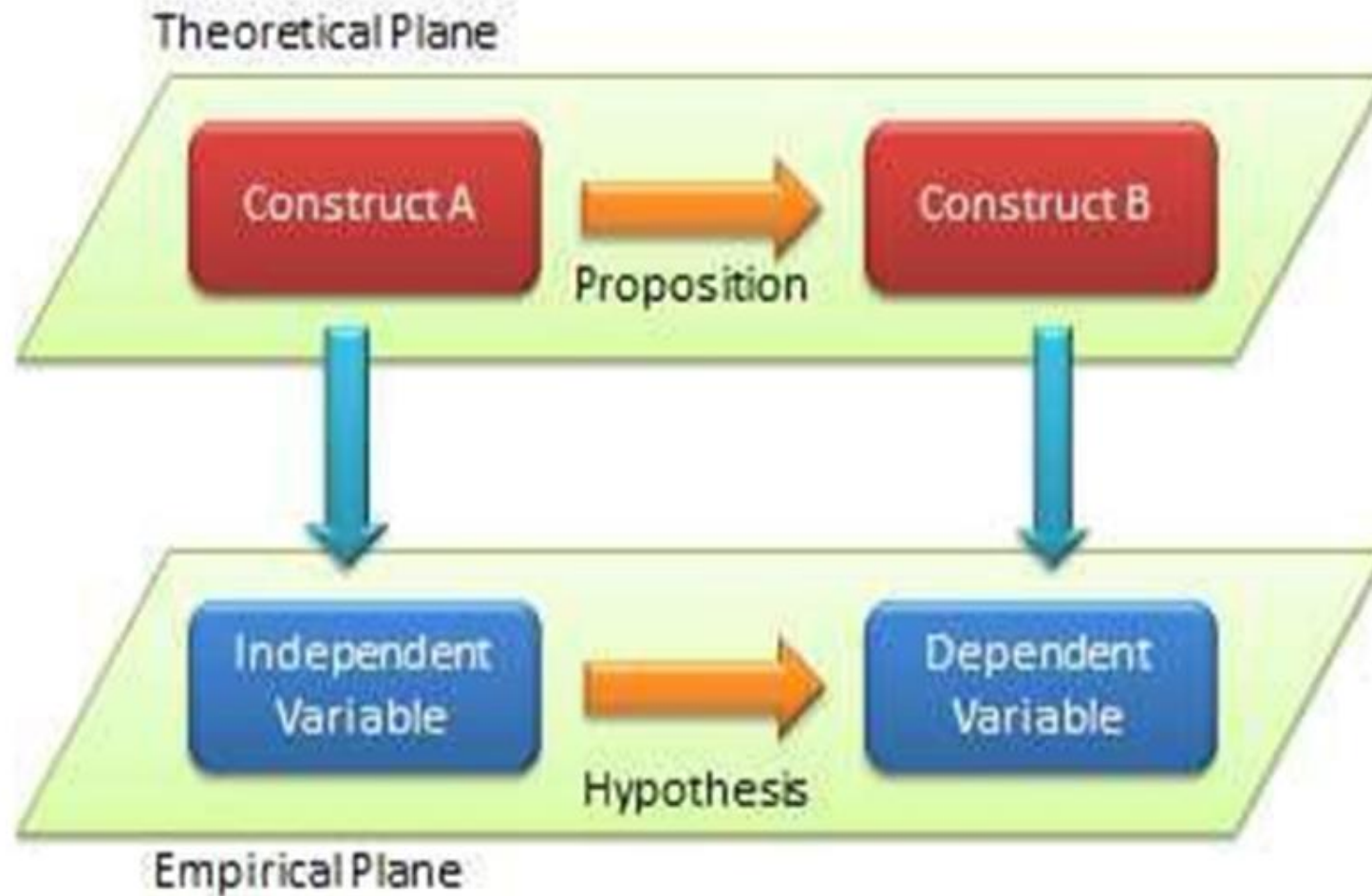
WHAT IS A CONSTRUCT?

A construct is an image or idea specifically invented for a given research and/or theory-building purpose.

Critical Race Theory (CRT)

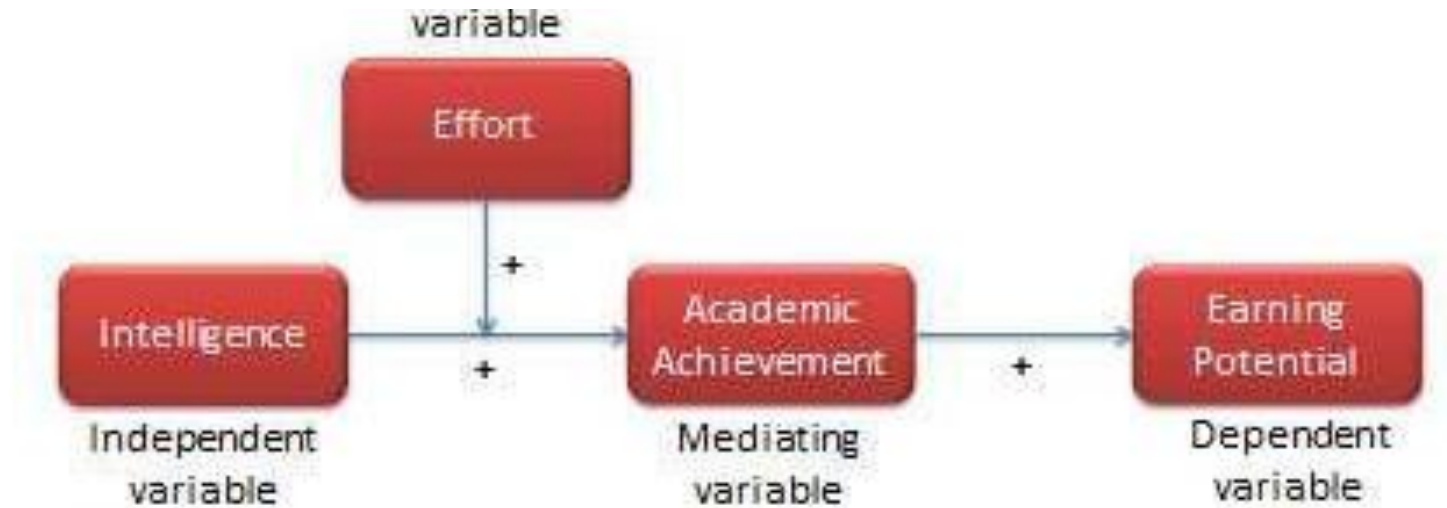


PROPOSITION VS HYPOTHESIS



TYPES OF VARIABLES

- Independent
- Dependent
- Moderating
- Mediating



THE ROLE OF THE HYPOTHESIS



Guides the direction of the study



Identifies facts that are relevant



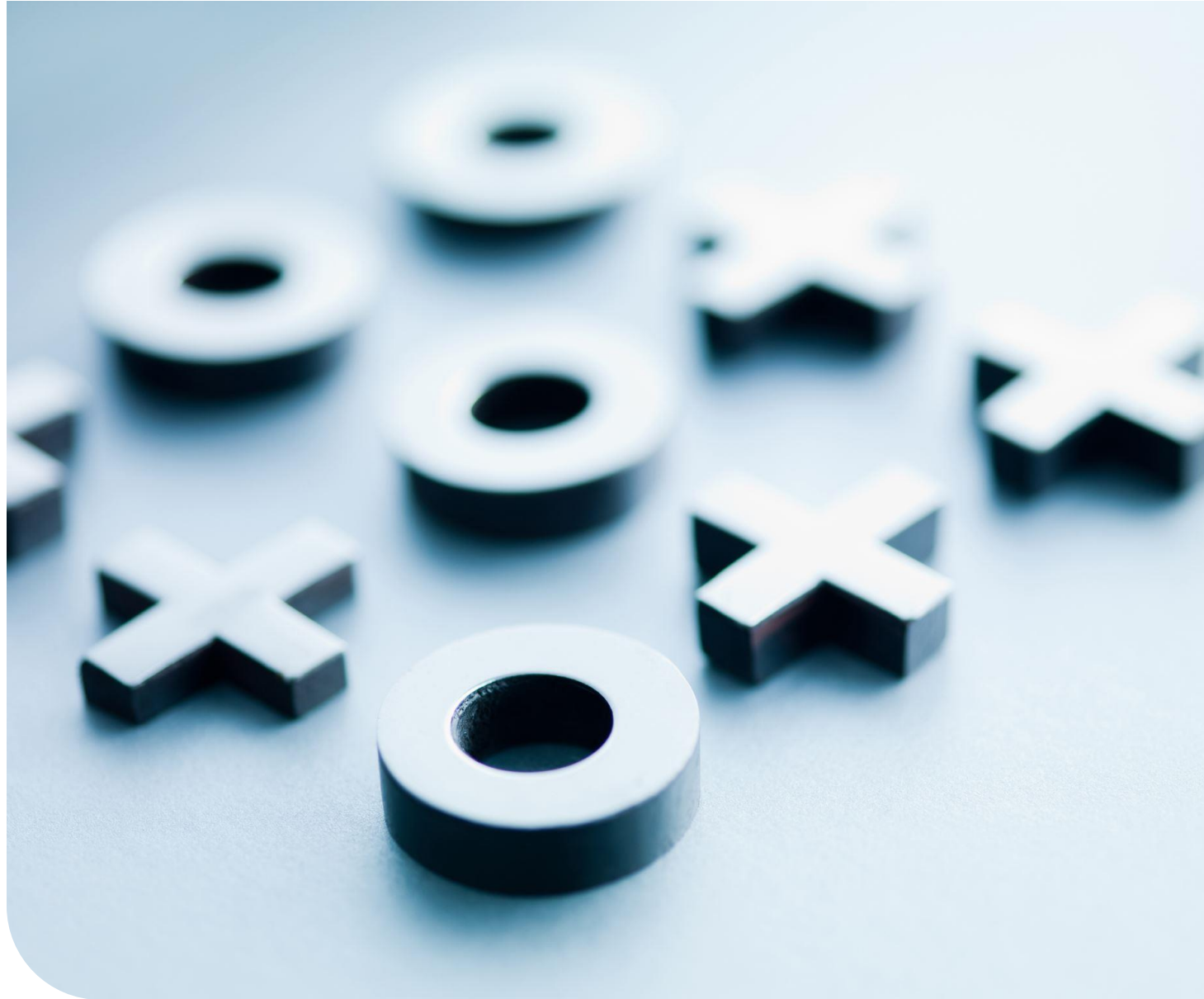
Suggests which form of research design is appropriate



Provides a framework for organizing the conclusions that result

WHAT IS A GOOD HYPOTHESIS?

- A good hypothesis should fulfill three conditions:
 - Must be adequate for its purpose
 - Must be testable
 - Must be better than its rivals





THE VALUE OF A THEORY

- Narrows the range of facts we need to study
- Suggests which research approaches will yield the greatest meaning
- Suggests a data classification system
- Summarizes what is known about an object of study
- Predicts further facts that should be found

Alternative modes of knowledge production

Descriptors	Mode 1	Mode 2	Mode 3
Activity triggers	Theoretical or empirical gaps	Practical problem	Appreciation and critique
Participants	Homogenous Sub-disciplines	Activity-centred Transdisciplinary (including Mode 1)	Diverse stakeholders (including Mode 1 and 2)
Goals	Truth, theoretical extension	Solution, improvement	Future good
Methods	Pre-tested, paradigm-based	Often invented, based on experience	Collective experience, conversation
Activity site	Sheltered, laboratory, 'ivory tower'	Practice, the workplace	Society, the community
Time horizon	Individually driven, often unimportant	Often immediate or urgent	Immediate to very long term
Boundaries	Disciplinary, pure/applied, institutional	Transdisciplinary, often proprietary	Multiple modes of knowing
Beneficiaries	Individual scientists, professional groups	Firms, government, commercial/regulatory bodies etc.	Society
Quality control	Elite-dominated, peer review	Utility, efficiency	Community agreement
Funding (primary source)	University, government, EU	Business	Philanthropy, university, business, government
Dissemination	Scholarly conferences, academic journals	Practitioner conferences, policy documents, internet	Local to global debates and action, media reports

Activity

Which mode of study it belongs to?

Can a practical problem explain by a theory?

Will you choose a hotel base on the eco-friendly policy?

Effectiveness of Travel Social Media Influencers: A Case of Eco-Friendly Hotels

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2022, Vol. 61(5) 1138–1155
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Payal S. Kapoor¹, M. S. Balaji² , Yangyang Jiang² ,
and Charles Jebarajakirthy³ 

Abstract

With social media becoming the primary channel for travelers to acquire travel-related information, tourism service providers are increasingly partnering with social media influencers (SMIs) as part of their digital marketing strategy. The present study investigates the effectiveness of SMIs by examining the role that two message factors—argument quality and sponsorship status—have on travelers' perceptions of a hotel's commitment to sustainability and their intention to stay at the hotel. Results from four studies show that when eco-friendly hotels sponsor SMIs, an attribute-value message is more effective than a simple recommendation message in influencing travelers' perceptions and intentions. Given the latest Federal Trade Commission regulations regarding sponsorship disclosure practices, the findings offer valuable insights for tourism providers using SMIs. The study findings suggest that SMIs should create sponsored messages that provide rational and objective information about the hotel's sustainability practices to stimulate travelers' related cognitions and persuade them to patronize the hotel.

Keywords

social media influencer, argument quality, sponsorship, Instagram, eco-friendly hotel

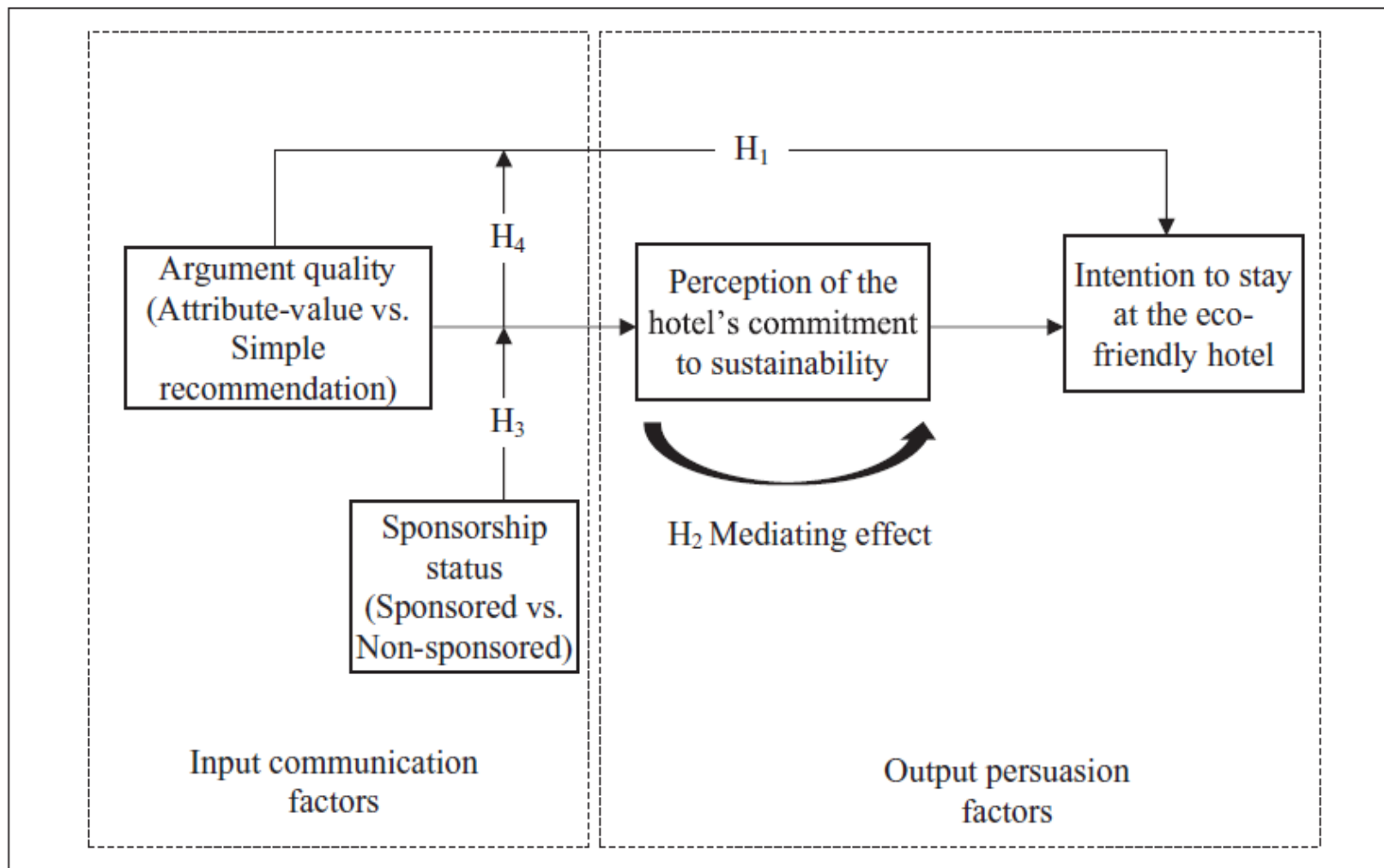


Figure 1. Conceptual framework of the study.

Hypothesis 1: When the SMI posts an attribute-value message on social media, it leads to a higher intention to stay at the eco-friendly hotel than when the SMI posts a simple recommendation message.

Hypothesis 2: Travelers' perceptions of the eco-friendly hotel's commitment to sustainability mediate the effect of message argument quality (attribute-value vs. simple recommendation) on their intention to stay at the eco-friendly hotel.

Hypothesis 3: For sponsored messages, attribute-value messages result in higher travelers' perceptions of the hotel's commitment to sustainability than simple recommendation messages.

Hypothesis 4: For sponsored messages, attribute-value messages result in higher intention to stay at the eco-friendly hotel than simple recommendation messages.

Hypothesis Testing



Assumption of
the null
hypothesis

Conducting
an experiment

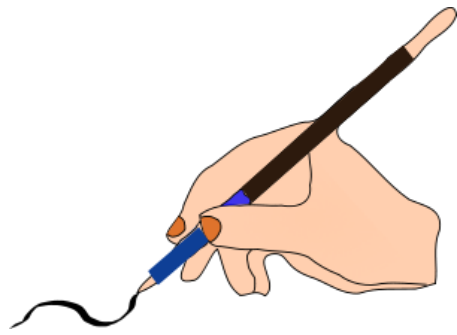
Results are not
interpretable
under the null
hypothesis

Rejecting Null
Hypothesis

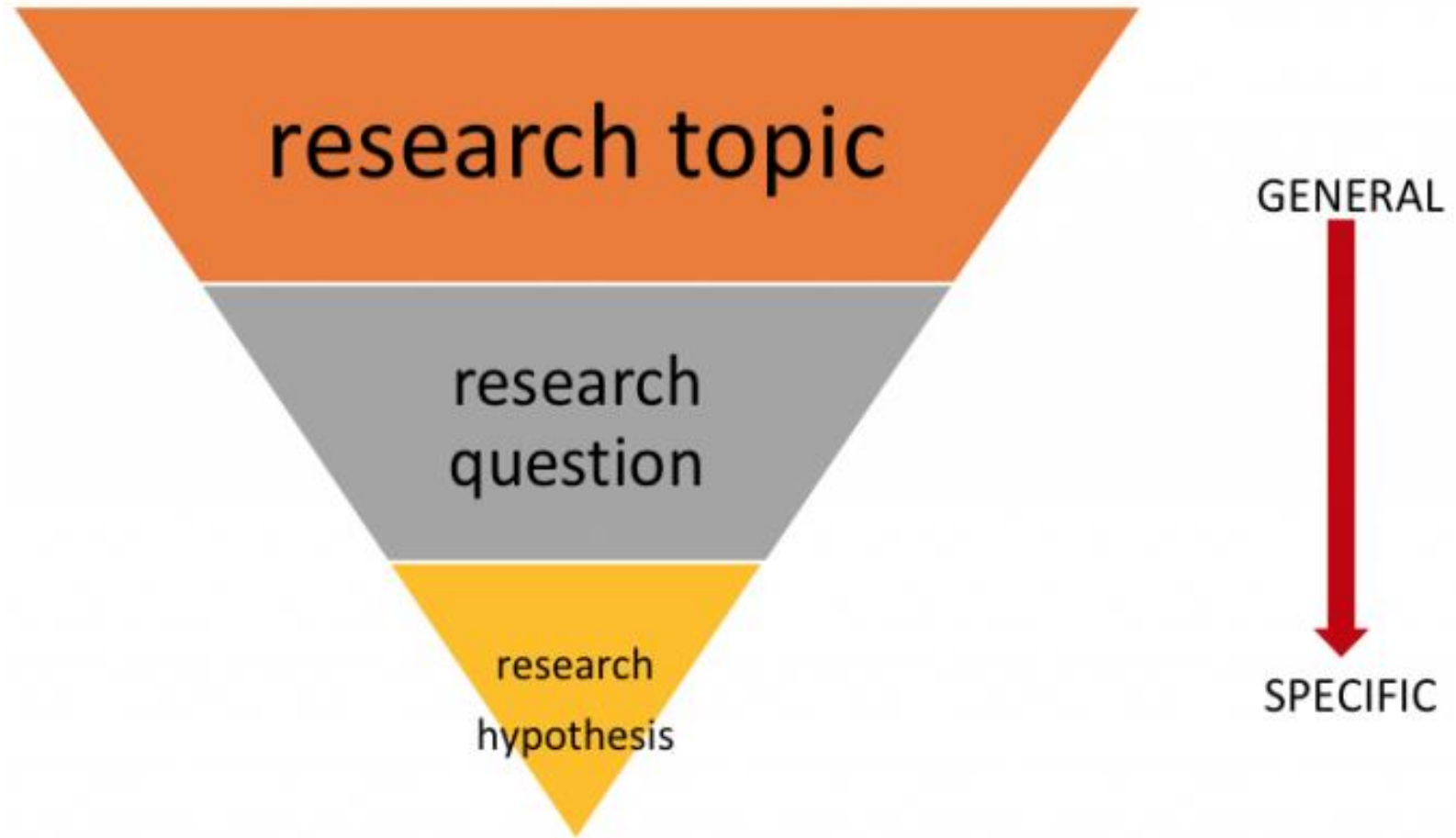
Accepting
Alternative
Hypothesis

ACCEPTED

REJECTED



Activity: Setting Hypotheses and Research Questions



INSTRUMENTS OF PARTICIPANT COMMUNICATION



INSTRUMENT DESIGN PROCESS

- Phase 1: Developing the instrument design strategy
- Phase 2: Constructing and refining the measurement questions
- Phase 3: Drafting and refining the instrument

DEVELOPING THE INSTRUMENT DESIGN STRATEGY

Management-Research Question Hierarchy

- The management problem/question
- Research question(s)
- Investigative questions
- Measurement questions



IMPROVING SURVEY RESULTS

Pretesting is an established practice for discovering errors and useful for training the research team



STRATEGIC CONCERNS OF INSTRUMENT DESIGN



What type of data is needed to answer the management question?



What communication approach will be used?



Should the questions be *structured*, *unstructured*, or some combination?



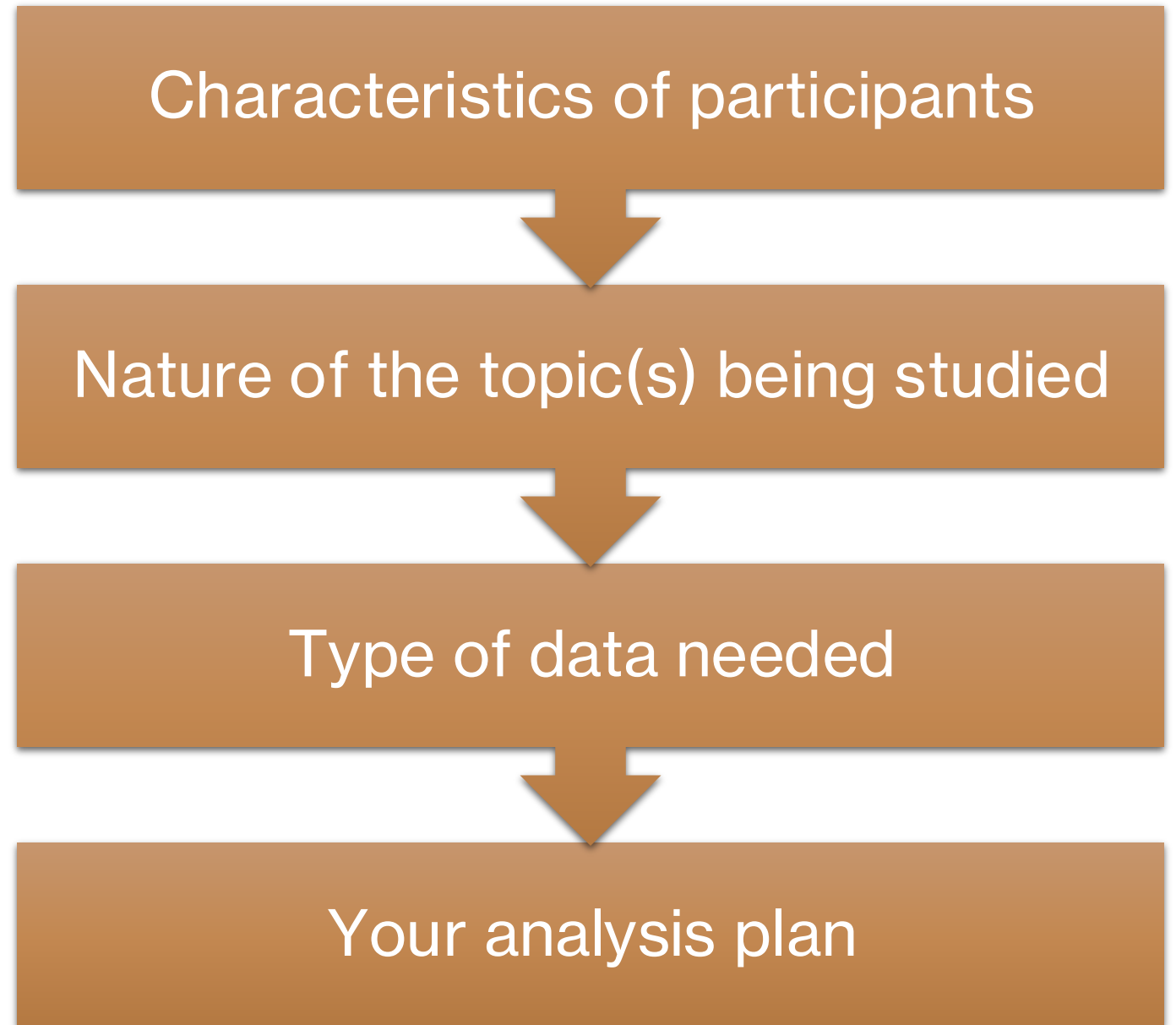
Should the questions be *disguised* or *undisguised*?



TYPES OF RESPONSE QUESTIONS

1. Free-response
2. Dichotomous
3. Multiple-choice
4. Checklist
5. Rating
6. Ranking

WHAT DICTATES YOUR RESPONSE STRATEGY?



Activity

Refer to the article, answer below questions:

1. How many hypotheses in this study?
2. How many variables in this study?
3. How many items for each variable?
4. Were those measurement instruments (statements) come from the same source of references?
5. How was the questionnaire released?
6. Will you follow the same practice of data collection method for your thesis?

The supports provided by artificial intelligence to continuous usage intention of mobile banking: evidence from China

AI's support to mobile banking

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Accepted 23 December 2022

Abstract

Purpose – Artificial intelligence (AI) has been widely used as a financial technology (fintech) in the mobile banking (M-banking) domain. However, in the literature, how AI affects users' perceptions of social support and the users' satisfaction and continuance intention (CI) remains unknown. To fill this gap, the two core characteristics of AI, perceived intelligence (PI) and perceived anthropomorphism (PA), are combined with social support theory (SST) (including informational support (IS) and emotional support (ES)) to develop a research model to investigate how PI and PA affect IS and ES, which in turn affect users' M-banking satisfaction and CI.

Design/methodology/approach – This study adopted a random probability sampling method to collect a total of 360 valid responses to verify the proposed model. Partial least squares (PLS) was employed for data analysis.

Findings – The results showed that PI and PA both have a significant positive impact on consumers' perception of social support (IS and ES). IS was a direct driver of satisfaction and CI. Surprisingly, although ES was positively associated with satisfaction, the study found that higher levels of ES will decrease CI. This study exposed how AI affects consumers' satisfaction and CI through SST, and the role of AI in M-banking applications has been further confirmed.

Originality/value – This study expanded the SST to creatively integrate with AI features to reveal the impact of PI and PA on IS and ES, which in turn influence users' M-banking usage.

Keywords Financial technology (fintech), Mobile banking, Artificial intelligence (AI), Social support theory, Satisfaction, Continuance intention

Paper type Research paper

PREVIOUS RESEARCH

Authors	Independent variable	Dependent variable	Main findings related to AI
Lee and Chen (2022)	Perceived intelligence, perceived anthropomorphism, task technology fit, perceived cost, perceived risk and trust	Adoption intention	Perceived intelligence and anthropomorphism increase users' willingness to adopt M-banking apps through TTF and trust
Lin <i>et al.</i> (2021)	Perceived intelligence, perceived anthropomorphism, performance expectancy, effort expectancy and facilitating conditions	M-banking continuance intention	AI features increase users' continuance intention through performance expectancy and facilitating conditions
Manser Payne <i>et al.</i> (2018)	Need for service, attitudes towards AI, quality of service, relative advantage, security in specific M-banking activities and perceived trust	M-banking usage and comfort using AI M-banking services	Attitudes towards AI have a positive impact on M-banking usage and usage of AI services; Security, trust and need for service were significant predictors of usage of AI services
Manser Payne <i>et al.</i> (2021)	Perceptions of AI service delivery and current bank service delivery, service delivery configuration benefits and data security, safety perceptions of M-banking services	Assessment of AI M-banking	AI service delivery has a significant and positive influence on the assessment of AI M-banking, and fully mediates the relationship between safety and assessment of AI M-banking
Suhartanto <i>et al.</i> (2022)	Quality of service, need for service, attitude towards AI, security, relative advantage, perceived trust and religiosity	AI-enabled M-banking loyalty	Attitude towards AI, service quality and trust are key factors affecting millennials' loyalty to AI-enabled M-banking
Yussaivi <i>et al.</i> (2021)	Need for service, quality of service, attitudes towards AI, relative advantage, security, trust and religiosity	M-banking usage, M-banking AI usage	Security, trust and attitudes towards AI and quality of service have significant effects on M-banking AI usage

The instrument of the questionnaire

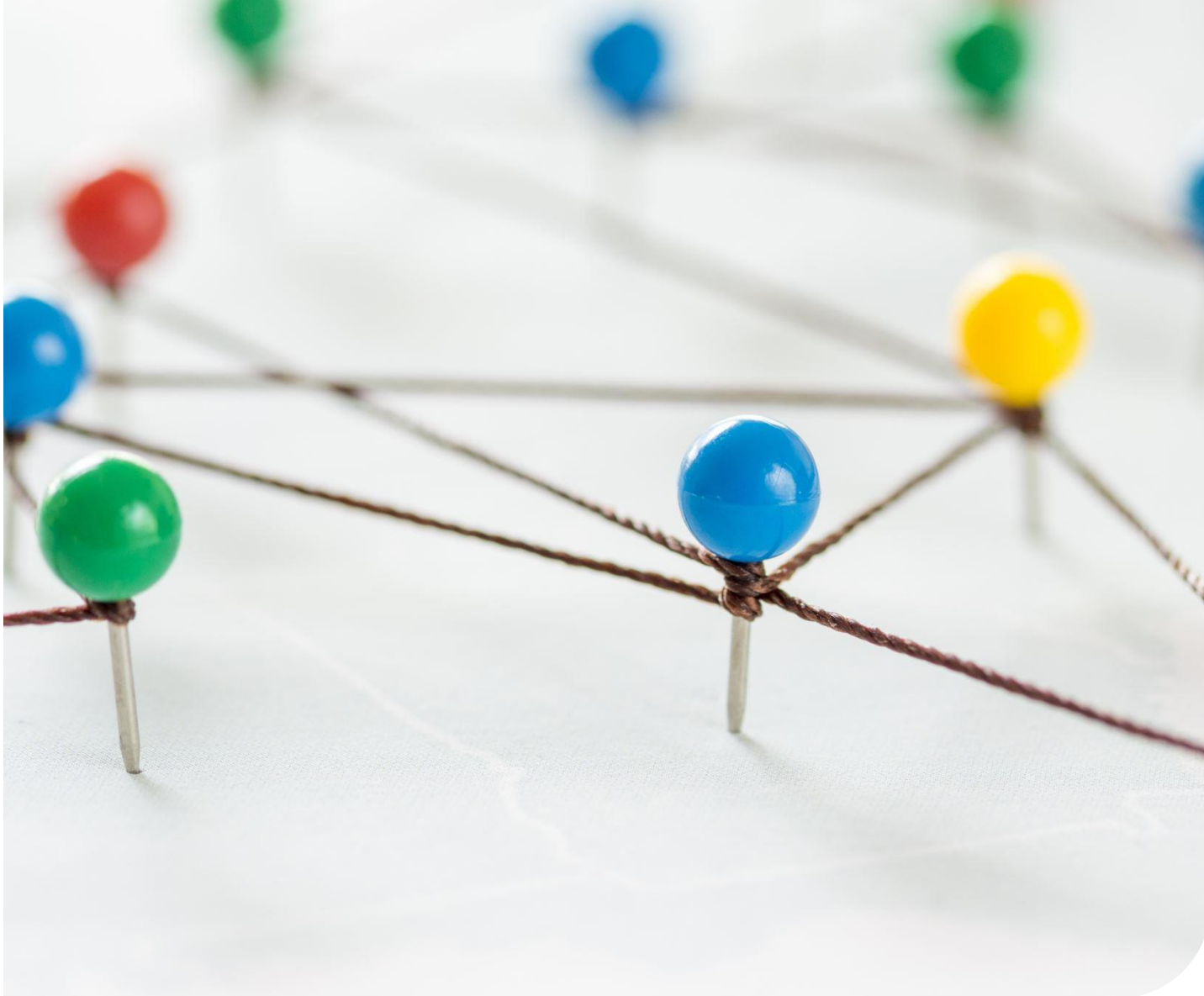
Variable	Measurement items	References
Perceived intelligence (PI)	PI1. M-banking can understand my commands PI2. M-banking can communicate with me in a way that I understand PI3. M-banking is able to set and pursue tasks by itself in anticipation of future user needs PI4. M-banking can adapt its behavior based on prior events	Moussawi <i>et al.</i> (2020), Lee and Chen (2022)
Perceived anthropomorphism (PA)	PA1. Using M-banking to complete a task feels similar to interacting with a real person PA2. I feel that M-banking is friendly PA3. M-banking makes me feel interested PA4. M-banking makes me feel considered	Moussawi <i>et al.</i> (2020), Lee and Chen (2022)
Informational support (IS)	IS1. M-banking gives me suggestions and advice when I need help IS2. When I encounter a problem, M-banking gives me information to help me overcome the problem IS3. When faced with difficulties, M-banking helps me discover the cause and provides me with suggestions IS4. M-banking tells me where I can go to get help	Leong <i>et al.</i> (2020), Tajvidi <i>et al.</i> (2020)
Emotional support (ES)	ES1. M-banking cares about my feelings ES2. M-banking listens to me talking about my private feelings and emotion ES3. When faced with difficulties, M-banking comforts and encourages me ES4. When faced with difficulties, M-banking expresses interest and concern in my well-being ES5. When faced with difficulties, M-banking is on my side	Leong <i>et al.</i> (2020), Chen and Shen (2015)
Satisfaction (SAT)	SAT1. I am satisfied with M-banking's effectiveness SAT2. I am satisfied with M-banking's efficiency SAT3. Overall, I am satisfied with M-banking	Sharma and Sharma (2019), Tam and Oliveira (2016)
Continuance intention (CI)	CI1. I intend to continue using M-banking rather than discontinue using it CI2. My intentions are to continue using M-banking rather than using any alternative means CI3. If I could, I would like to continue using M-banking as much as possible	Yuan <i>et al.</i> (2019), Tam <i>et al.</i> (2020)

TYPES OF SAMPLING DESIGNS

Probability

Nonprobability



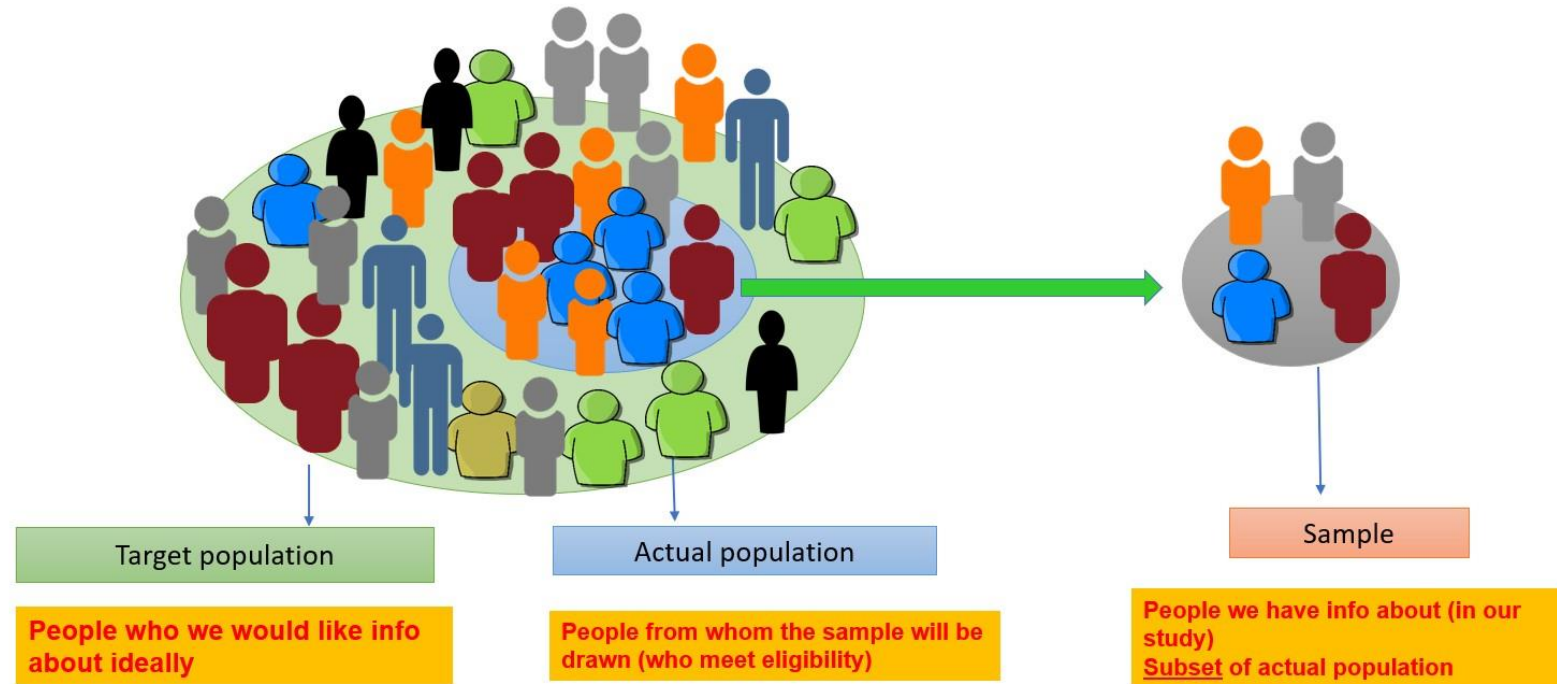


SELECTION OF ELEMENTS

- *Population*
- *Population Element*
- *Sampling*
- *Census*

STEPS IN SAMPLING DESIGN

- What is the relevant population?
- What are the parameters of interest?
- What is the *sampling frame*?
- What is the type of sample?
- What sample size is needed?
- How much will it cost?



PROBABILITY SAMPLING DESIGNS

Simple random sampling

Systematic sampling

Stratified sampling

- Proportionate
- Disproportionate

Cluster sampling

Double sampling

DESIGNING CLUSTER SAMPLES

How homogeneous are the clusters?

Shall we seek equal or unequal clusters?

How large a cluster shall we take?

Shall we use a single-stage or multistage cluster?

How large a sample is needed?

NON PROBABILITY SAMPLING – REASONS TO USE

Procedure
satisfactorily meets
the sampling
objectives

Lower Cost

Limited Time

Not as much human
error as selecting a
completely random
sample

Total list population
not available

NONPROBABILITY SAMPLING



Convenience Sampling

Purposive Sampling

- Judgment Sampling
- Quota Sampling

Snowball Sampling

NON-PROBABILITY SAMPLING TECHNIQUES

Type	Sampling technique	Nature of participant(s) chosen	Potential relevance to a research question
Purposive – choice of participants based upon the researcher's judgement	Heterogeneous	diverse characteristics, maximum variation	participants reveal or illuminate key themes
	Homogenous	similar characteristics, limited variation	participants reveal or illuminate depth, minor differences apparent in key themes
	Theoretical	as needed on basis of developing categories	participants cumulatively test emerging theory
	Typical case	normal or usual, not definitive	participant(s) provide an illustration, rich account
	Critical case	crucial to what is being researched	participant(s) important or can make a point dramatically
	Extreme case	extreme or unusual	participant(s) reveal the most, relevant to understanding the more typical
	Opportunistic	as revealed	participant(s) allow new leads to be followed
Volunteer – choice of participants based on those who offer to take part	Politically important	salient and connected	participant(s) attract attention (excluded to avoid undesired attention)
	Snowball (chain)	similar, identified by existing participants	participants are difficult to identify
Haphazard – choice based on convenience of access	Self-selection	strong feelings about research questions, self identify to take part	participant(s) willing to devote time
	Convenience	unclear, other than willingness to take part	participant(s) readily available, easy to access, save resources