Количественные методы в научных исследованиях
Часть 2

Lesson 7

The research process

Uma Sekaran & Roger Boguie. Research Methods for Business: A skill building Approach, John Wiley & Son, 2014
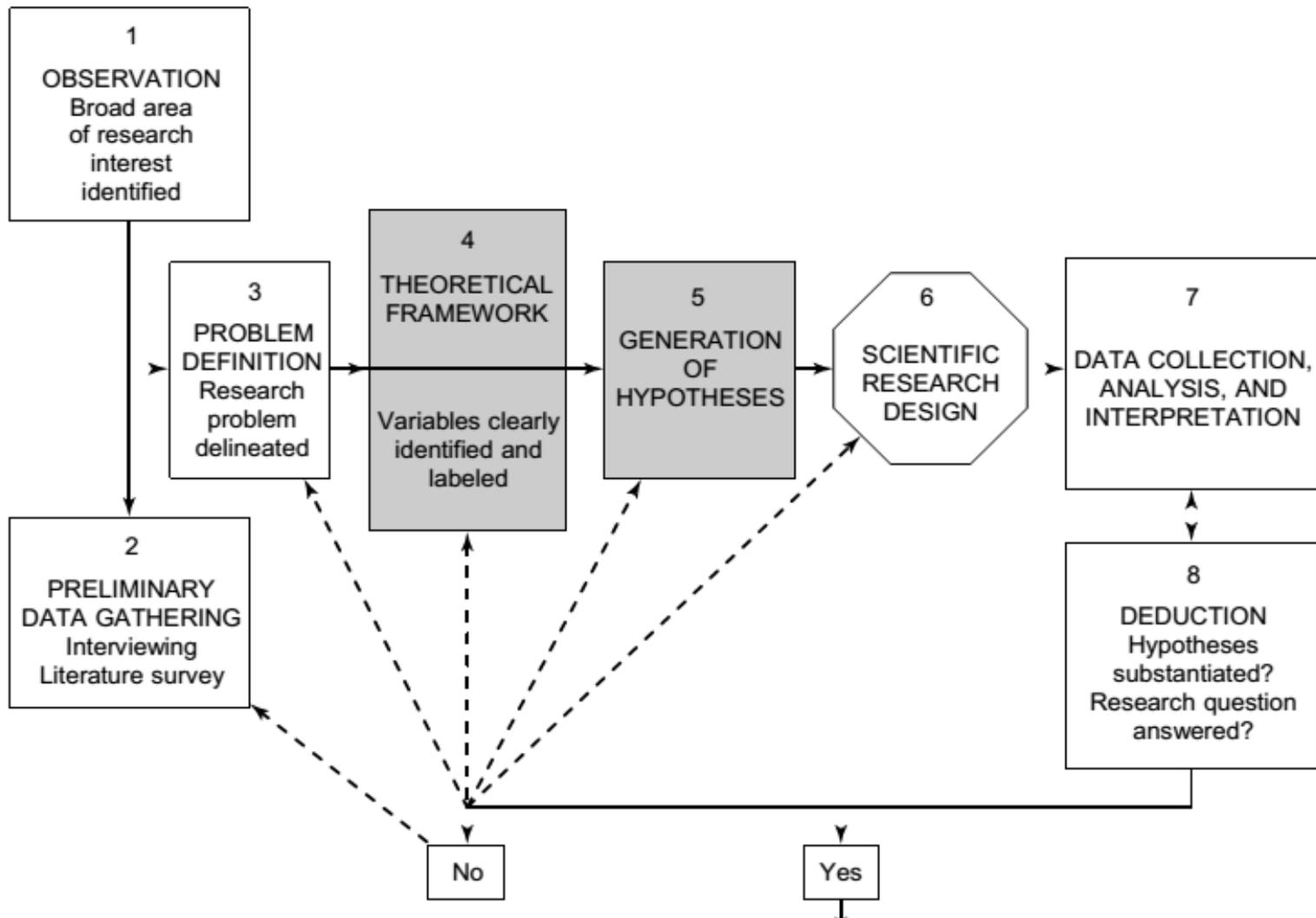
THE NEED FOR A THEORETICAL FRAMEWORK

After conducting the interviews, completing a literature survey, and defining the problem, one is ready to develop a **theoretical framework.**

A **theoretical framework** is a conceptual model of how one theorizes or makes logical sense of the relationships among the several factors that have been identified as important to the problem. This theory flows logically from the documentation of previous research in the problem area.

Integrating one's logical beliefs with published research, taking into consideration the boundaries and constraints governing the situation, is pivotal in developing a scientific basis for investigating the **research problem.**

THE NEED FOR A THEORETICAL FRAMEWORK

In sum, the **theoretical framework** discusses the interrelationships among the variables that are deemed to be integral to the dynamics of the situation being investigated. Developing such a conceptual framework helps us to postulate or hypothesize and test certain relationships and thus to improve our understanding of the dynamics of the situation.

From the **theoretical framework,** then, testable hypotheses can be developed to examine whether the theory formulated is valid or not. **The hypothesized relationships can thereafter be tested through appropriate statistical analyses.** By being able to test and replicate the findings, we will also have stronger conviction in the rigor of our research.

THE NEED FOR A THEORETICAL FRAMEWORK

Thus, the entire research rests on the basis of the theoretical framework. Even if testable hypotheses are not necessarily generated (as in some applied research projects), **developing a good theoretical framework is central to examining the problem under investigation.**

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Variables (Concepts, Construct)

Simply defined, **a variable** is a concept that varies. In quantitative research, we use a language of variables and relationships among variables.

DIFFERENT EXAMPLES:

❑*Production units:* One worker in the manufacturing department may produce one widget per minute, a second might produce two per minute, a third might produce five per minute. It is also possible that the same member could produce one widget the first minute, and five the next minute. In both cases, the number of widgets produced has taken on different values, and is therefore a variable.

Variables (Concepts, Construct)

DIFFERENT EXAMPLES:

❑**Absenteeism:** Today three members in the sales department may be absent, tomorrow six members may not show up for work; the day after, there may be no one absent. The value can thus theoretically range from —zero‖ to —all‖ being absent, on the absenteeism variable.

❑**Motivation:** The levels of motivation of members to learn in the class or in a work team might take on varying values ranging from —very low‖ to —very high.‖ An individual's motivation to learn from different classes or in different work teams might also take on differing values.

Types of Variables

Four main types of variables are discussed in this chapter:

1. The **Dependent variable** (also known as the **criterion variable**) - **DV**

2. The **Independent variable** (also known as the **predictor variable**) - **IV**

3. The **Moderating variable** - **MV**

4. The **Mediating (Intervening)** variable - **MV**

Dependent Variables

Dependent Variable

The dependent variable is the variable of primary interest to the researcher. The researcher's goal is to understand and describe the dependent variable, or to explain its variability, or predict it. In other words, it is the main variable that lends itself for investigation as a viable factor.

Through the analysis of the dependent variable (i.e., finding what variables influence it), it is possible to find answers or solutions to the problem.

Examples of Dependent Variable (DV)

Example 1:
A basic researcher is interested in investigating the debt-to-equity ratio of manufacturing companies in Almaty. Here the DV is the ratio of **debt to equity.**

Example 2:
A vice president is concerned that the employees are not loyal to the organization, and in fact, seem to switch their loyalty to other institutions. The DV in this case would be **organizational loyalty.**

The Deductive Approach Typically Used in Quantitative Research

Researcher tests or verifies a theory

↓

Researcher tests hypotheses
or research questions from the theory

↓

Researcher defines and operationalizes
variables derived from the theory

↓

Researcher measures or observes variables
using an instrument to obtain scores
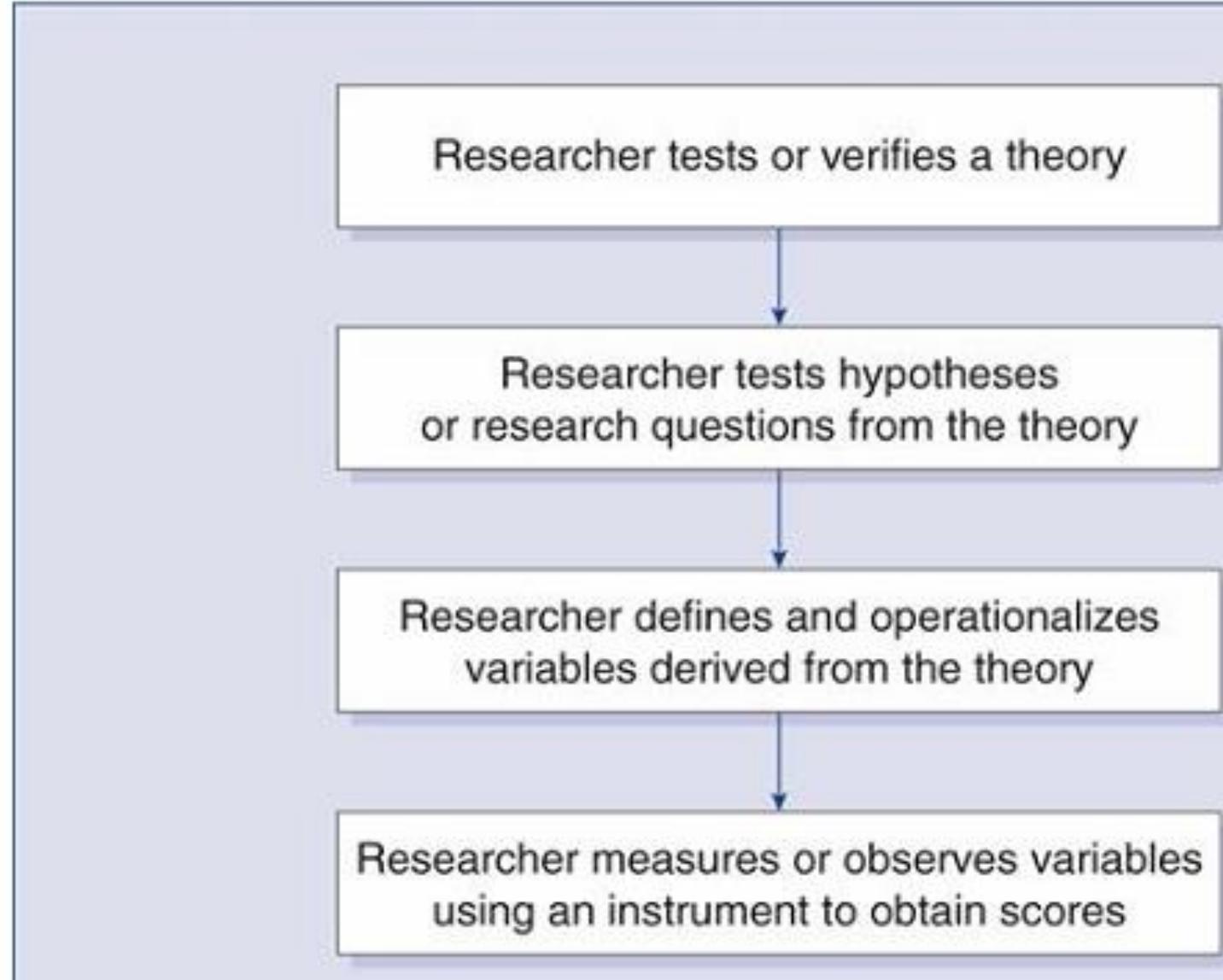
Now respond to some Exercises

Exercise 5.1

An applied researcher wants to increase the performance of organizational members in a particular bank.
What would be the dependent variable in this case?

Exercise 5.2

A marketing manager wonders why the recent advertisement strategy does not work.
What would be the dependent variable here?

Independent Variables

Independent Variable

An independent variable is **one that influences the DV in either a positive or negative way.**

That is, when the independent variable is present, the dependent variable is also present, and with each unit of increase in the independent variable, there is an increase or decrease in the dependent variable also. In other words, the variance in the dependent variable is accounted for by the independent variable.

Examples of Independent Variable (IV)

Example 1:
Research studies indicate that successful new product development has an influence on the stock market price of the company. That is, the more successful the new product turns out to be, the higher will be the stock market price of that firm. Therefore, the **success of the new product** is the *independent variable,* and **stock market price** the *dependent variable.*

The degree of perceived success of the new product developed will explain the variance in the stock market price of the company.

Examples of Independent Variable (IV)

Figure 5.1

Diagram of the relationship between the independent variable (new product success) and the dependent variable (stock market price).

New product
success

Stock market
price

Independent variable   Dependent variable
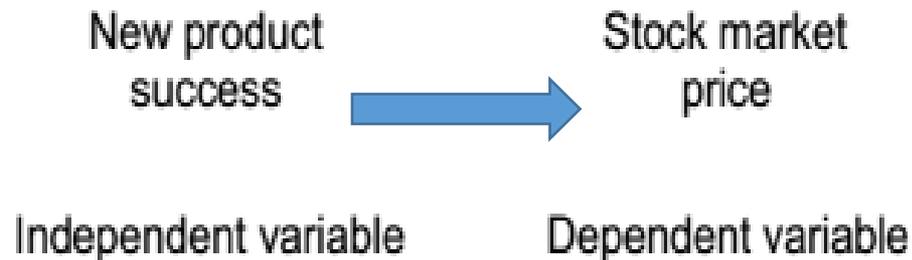
Examples of Independent Variable (IV)
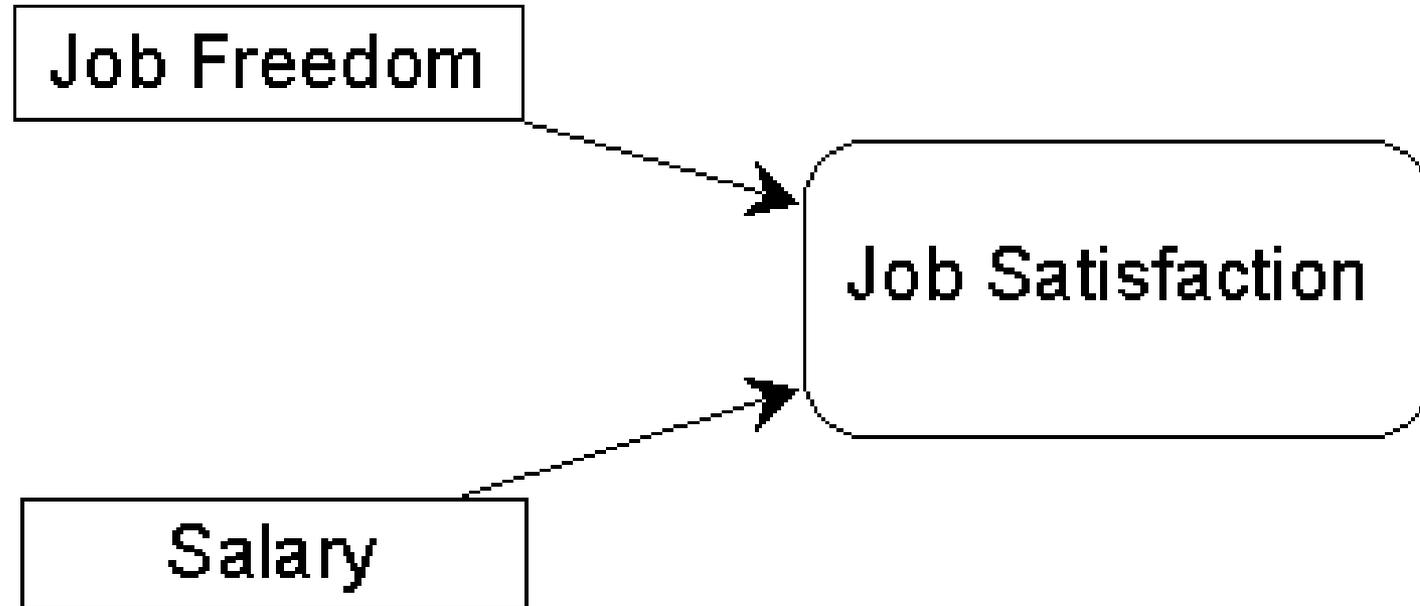
Now respond to some Exercises

List the variables in this and the next exercise, individually, and label them as dependent or independent, explaining why they are so labeled. Diagram the relationships.

Exercise 5.3

A manager believes that good supervision and training would increase the production level of the workers.

Exercise 5.4

A consultant is of the opinion that much benefit would accrue by buying and selling at the appropriate times in a financial environment where the stocks are volatile.

Moderating Variable

The moderating variable is one that has a strong *contingent effect* on the **independent variable–dependent variable** relationship.

That is, the presence of a third variable (the moderating variable) modifies the original relationship between the independent and the dependent variables. This becomes clear through the following examples.

Examples of Moderating Variable
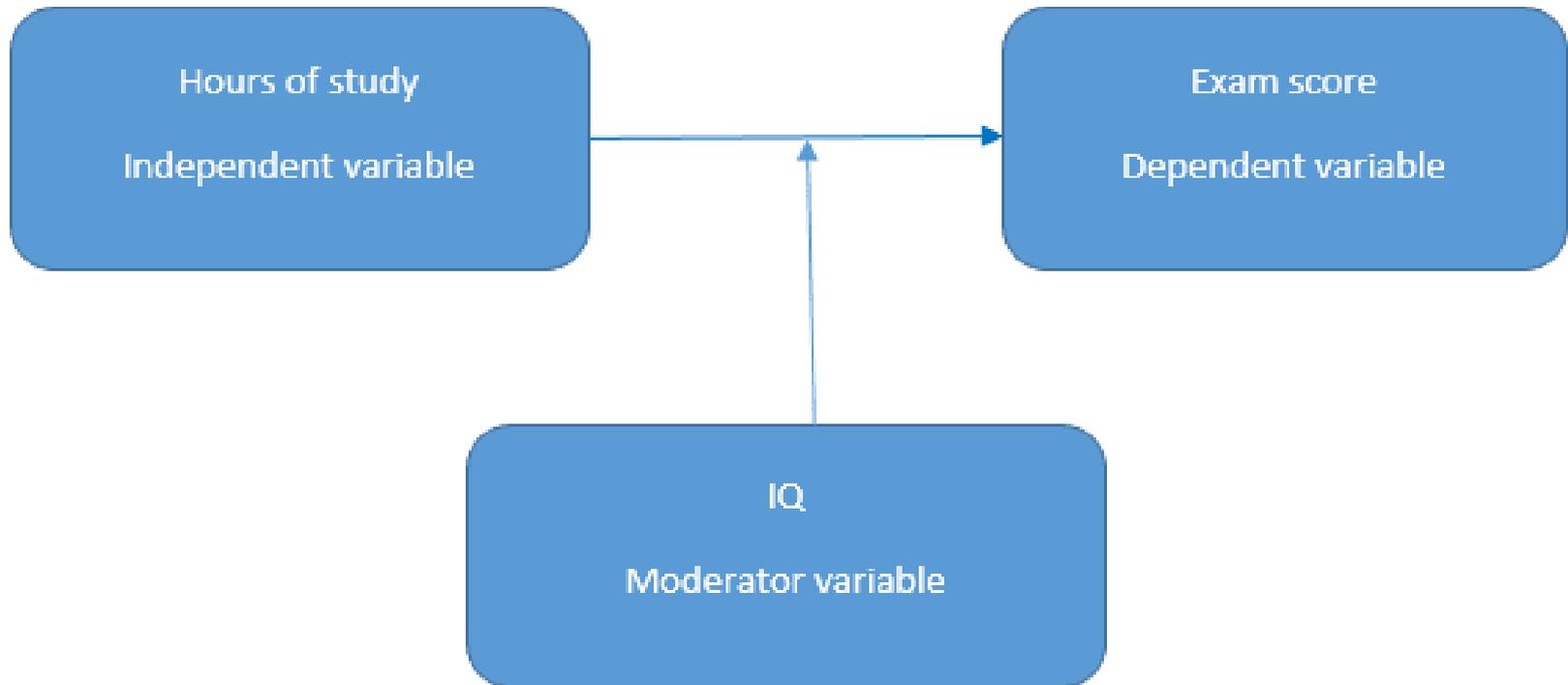
Examples of Moderating Variable
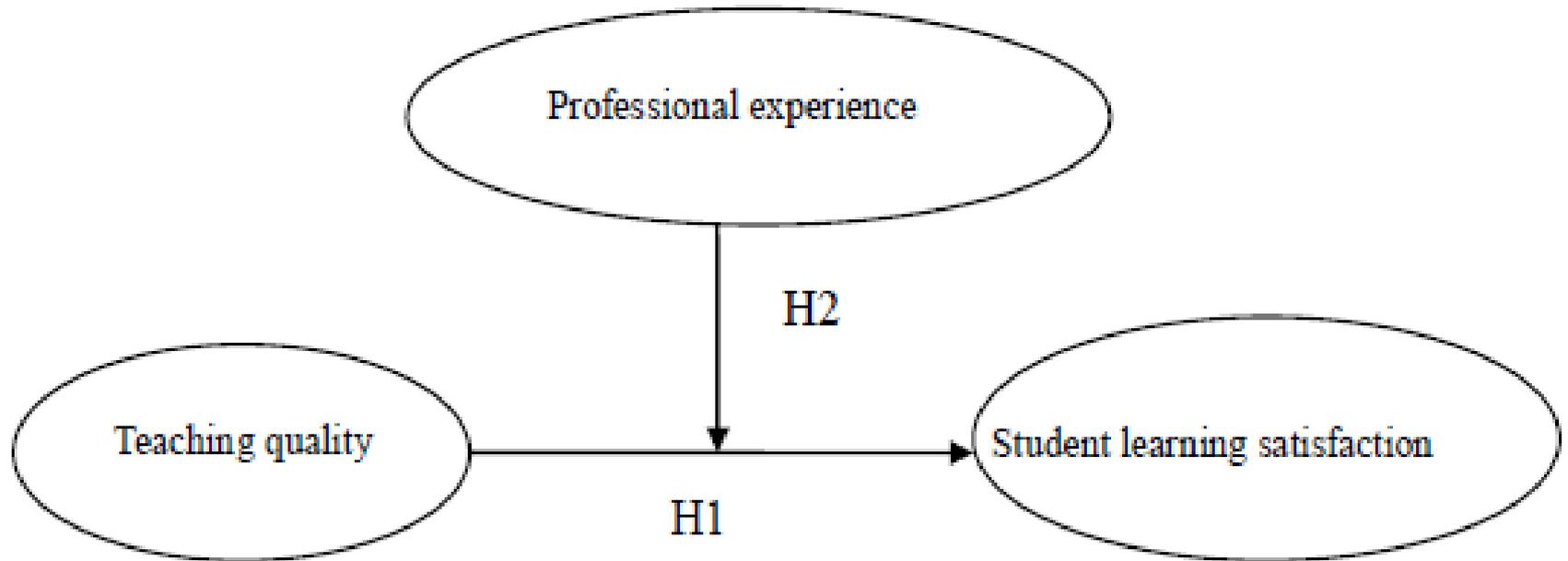
Figure 1. Research framework.

Examples of Moderating Variable from Org Behavior field
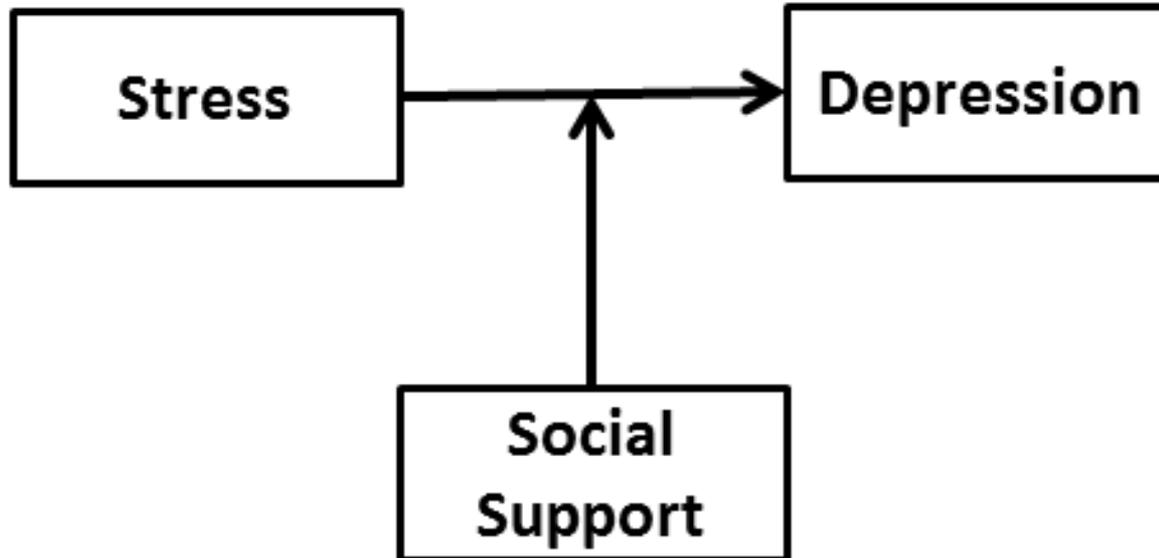
Now respond to some Exercises

Exercise 5.5

List and label the variables in this and the following exercise and explain and diagram the relationships among the variables.

A manager finds that off-the-job classroom training has a great impact on the productivity of the employees in her department. However, she also observes that employees over 60 years of age do not seem to derive much benefit and do not improve with such training.

Exercise 5.6

A visitor to a factory observes that the workers in the packing department have to interact with one another to get their jobs done. The more they interact, the more they seem to tend to stay after hours and go to the local pub together for a drink. However, the women packers, even though they interact with the others as much as the men, do not stay late, nor do they visit the pub after work hours.

Mediating (Intervening) Variable

Mediating Variable

An mediating variable is one that surfaces between the time the independent variables start operating to influence the dependent variable and the time their impact is felt on it. There is thus a temporal quality or time dimension to the intervening variable. The intervening variable surfaces as a function of the independent variable(s) operating in any situation, and helps to conceptualize and explain the influence of the independent variable(s) on the DV.

Examples of Mediating Variable
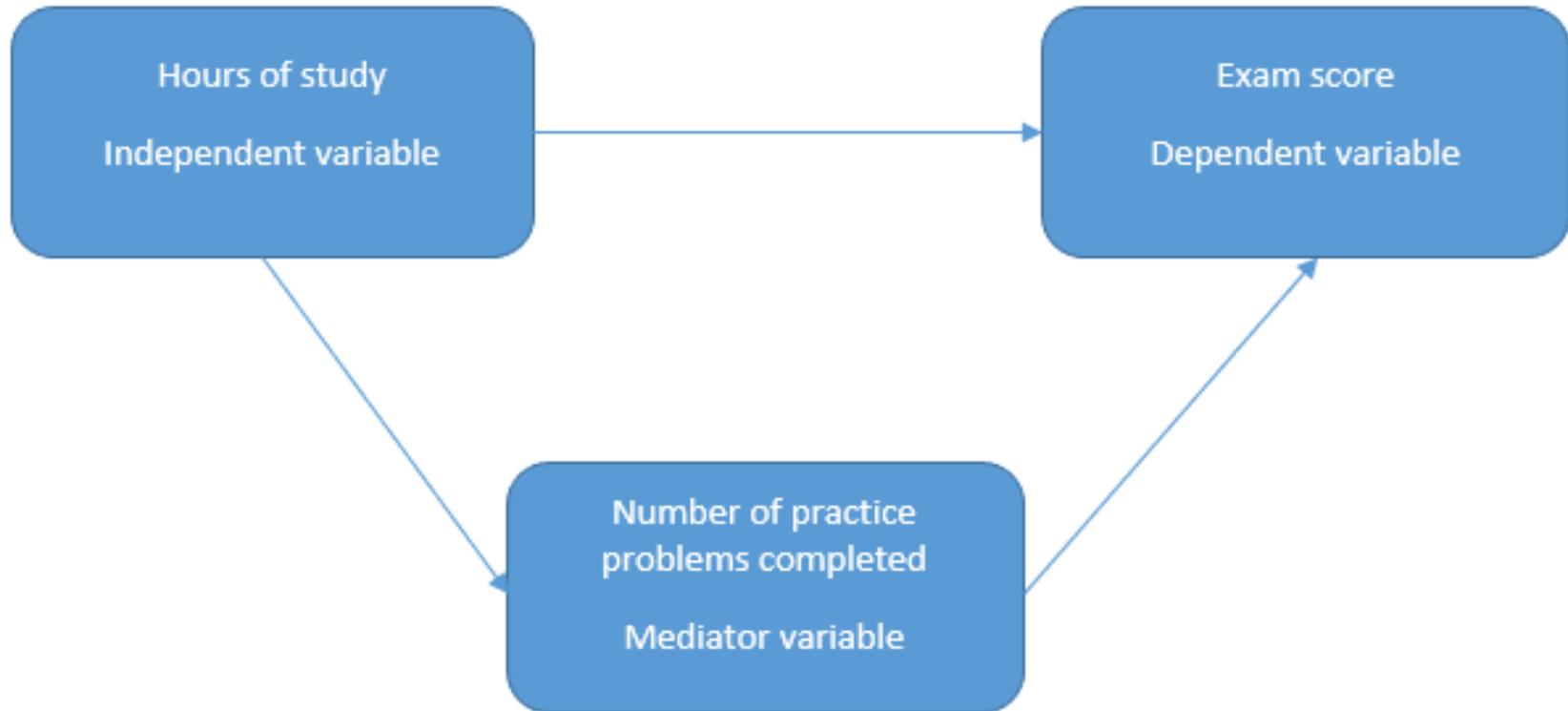
Examples of Mediating Variable
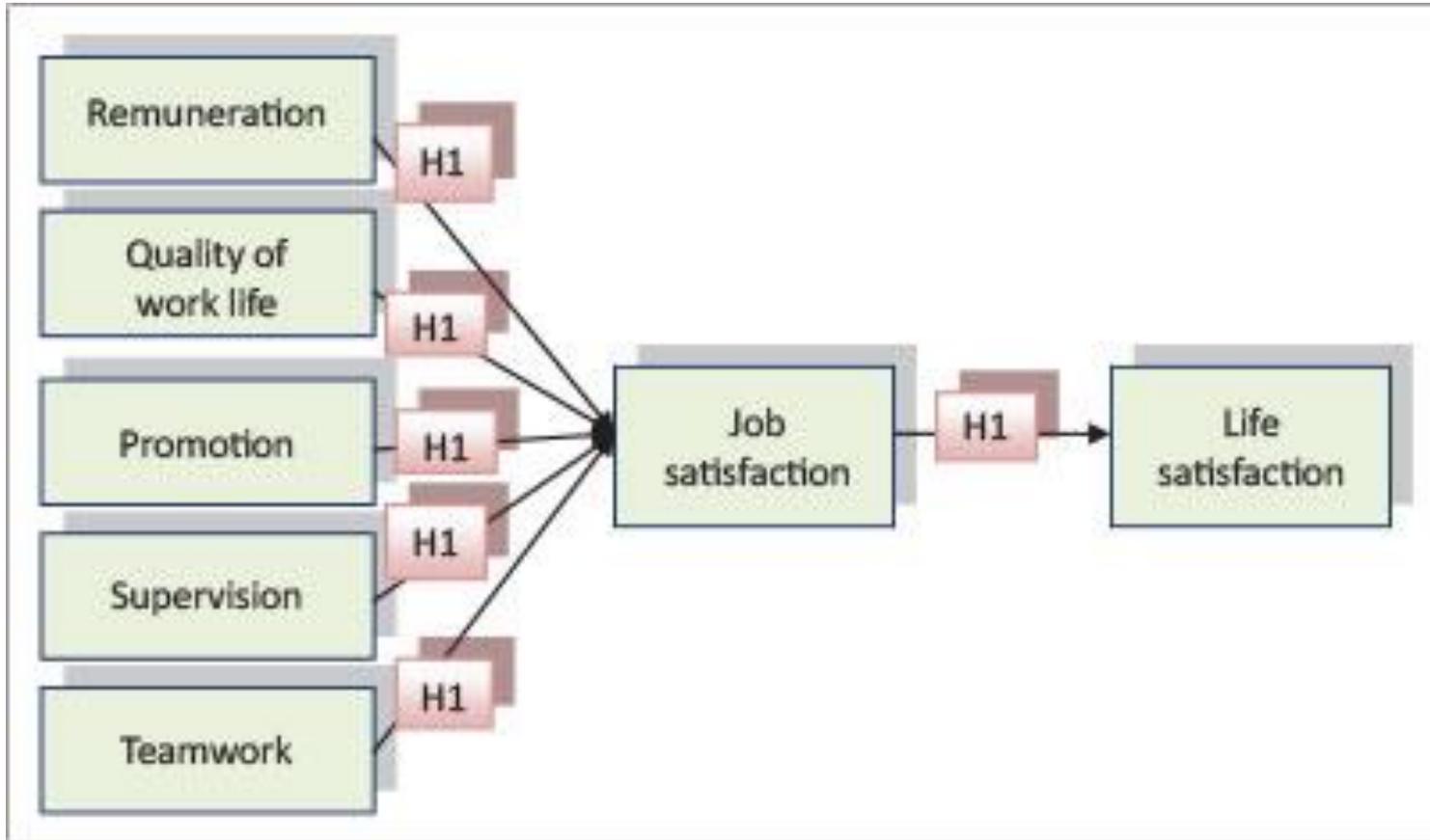
FIGURE 1: Proposed conceptual framework.

Now respond to some Exercises

Exercise 5.7

Make up three different situations in which motivation to work would be an independent variable, an intervening variable, and a moderating variable.

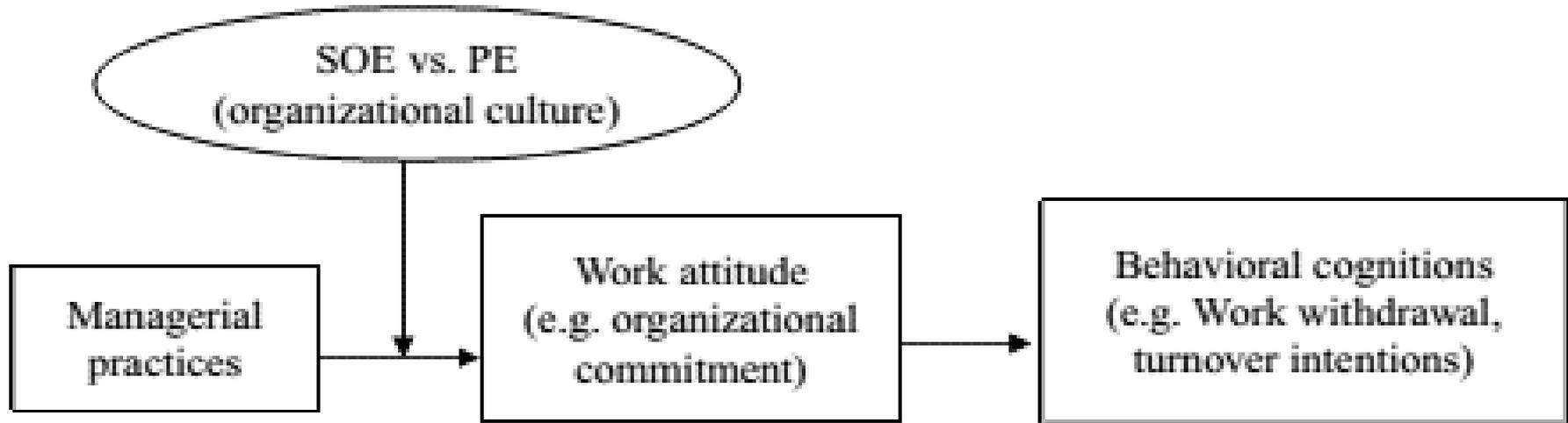# Examples of Conceptual Models from Different Fields: Knowledge Management

KSS – environmental factor
Friendly knowledge-sharing environment

KSS – individual factors
Extrinsic motivation
Intrinsic motivation
Altruistic motivation

Knowledge-sharing behavior
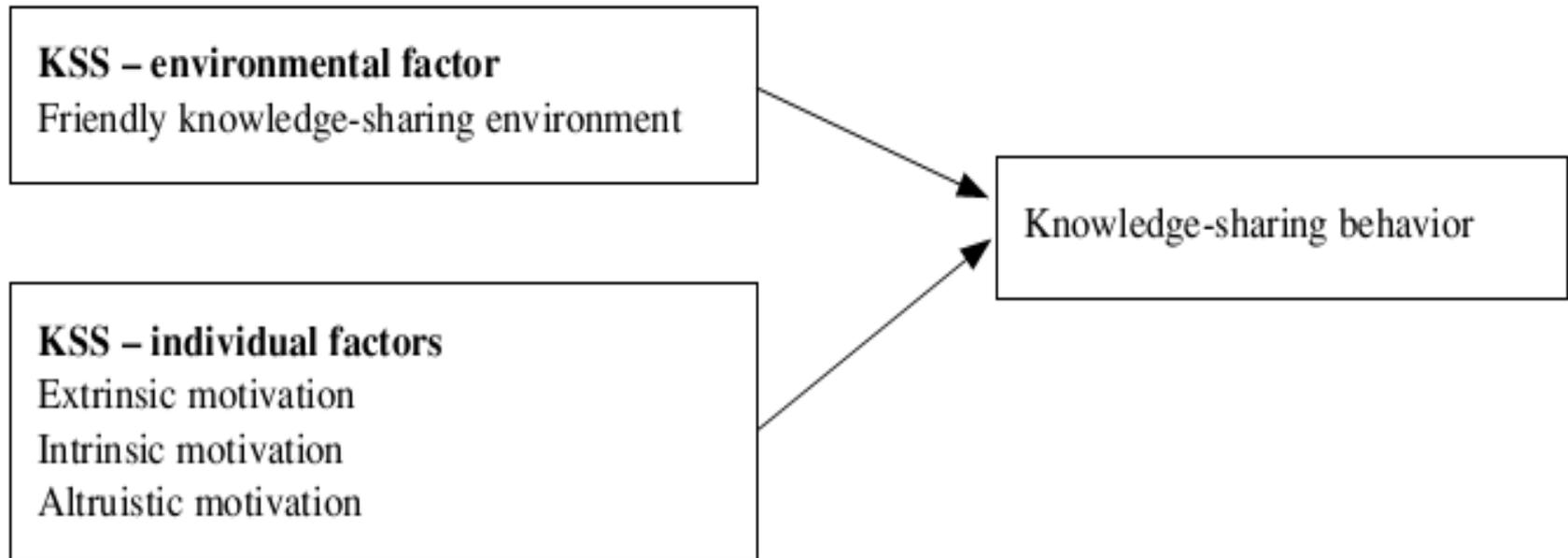
Simple Research Model: one DV and two IV

Examples of Conceptual Models from Different Fields: Human Resource Management

| High Performance Work System | → | Employee Outcomes | → | Organizational Performance |
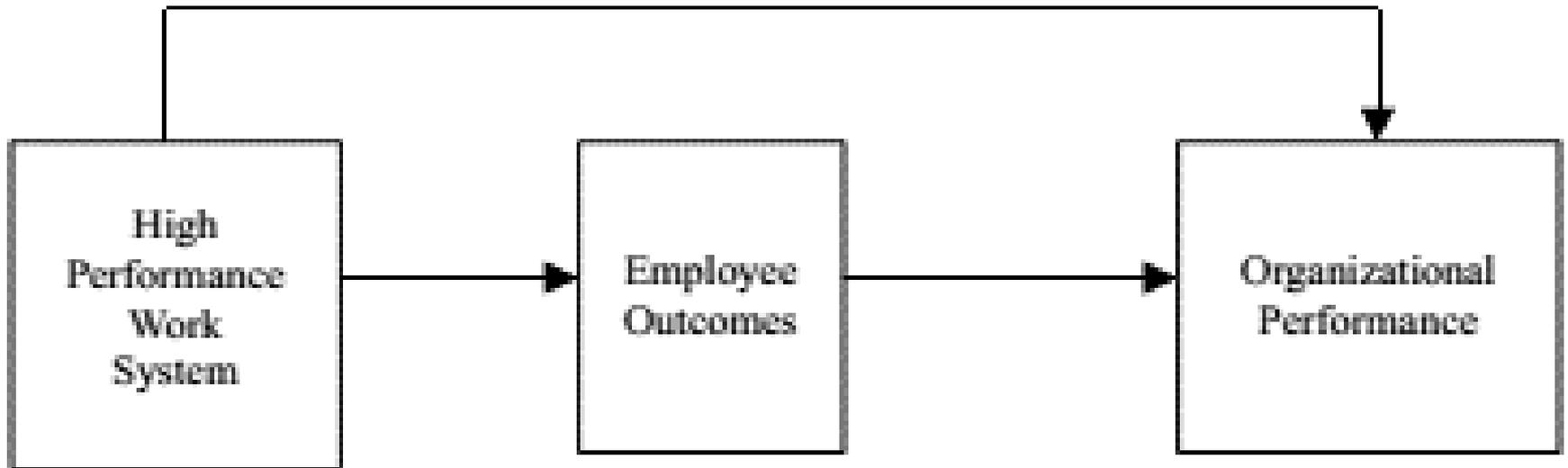
Research Model: one DV , one IV and one MV

Examples of Conceptual Models from Different Fields: Organizational Behaviour

Research Model: one DV , one IV , one MV and one Moderating Variable

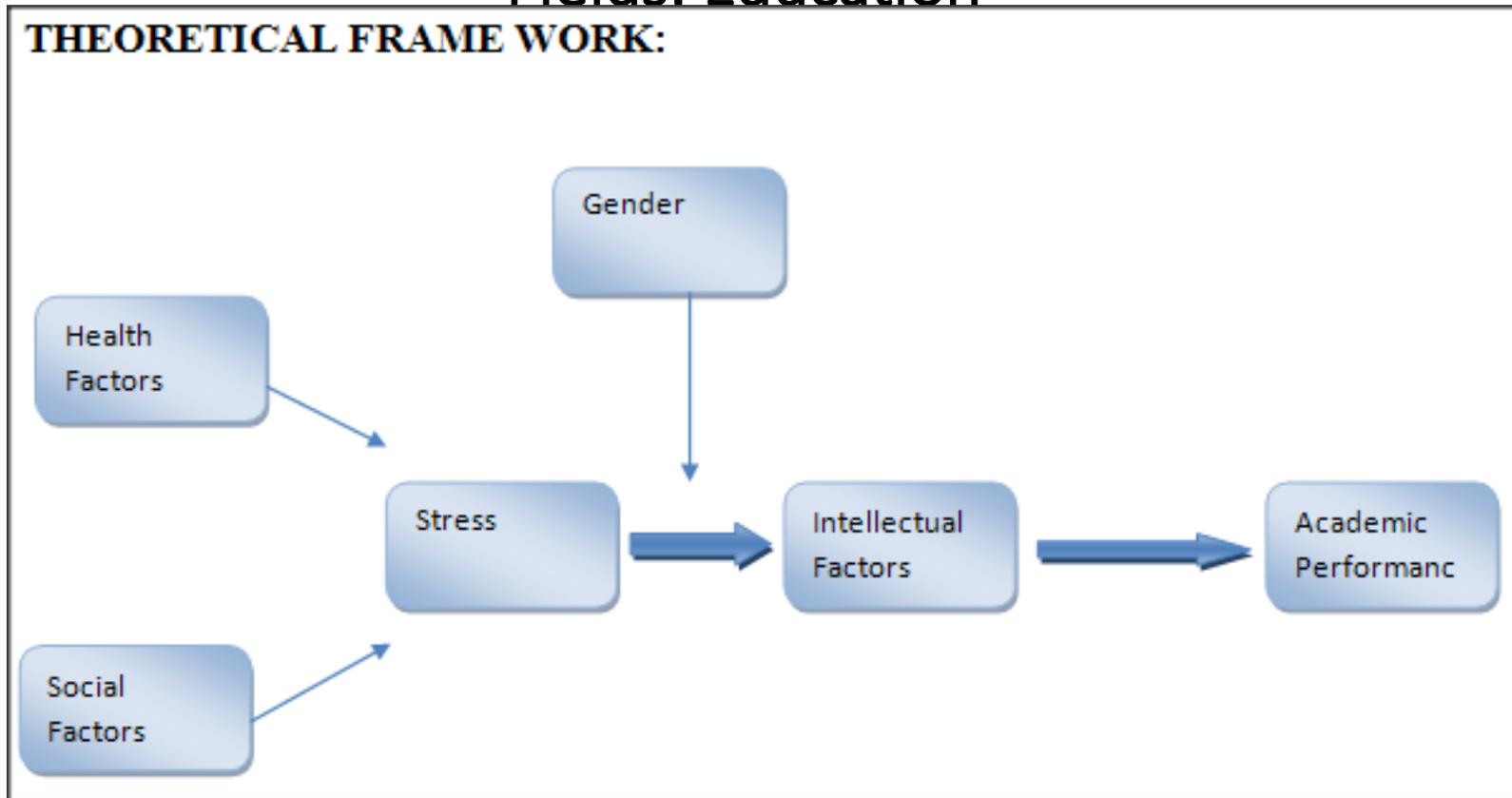# Examples of Conceptual Models from Different Fields: Human Resource Management
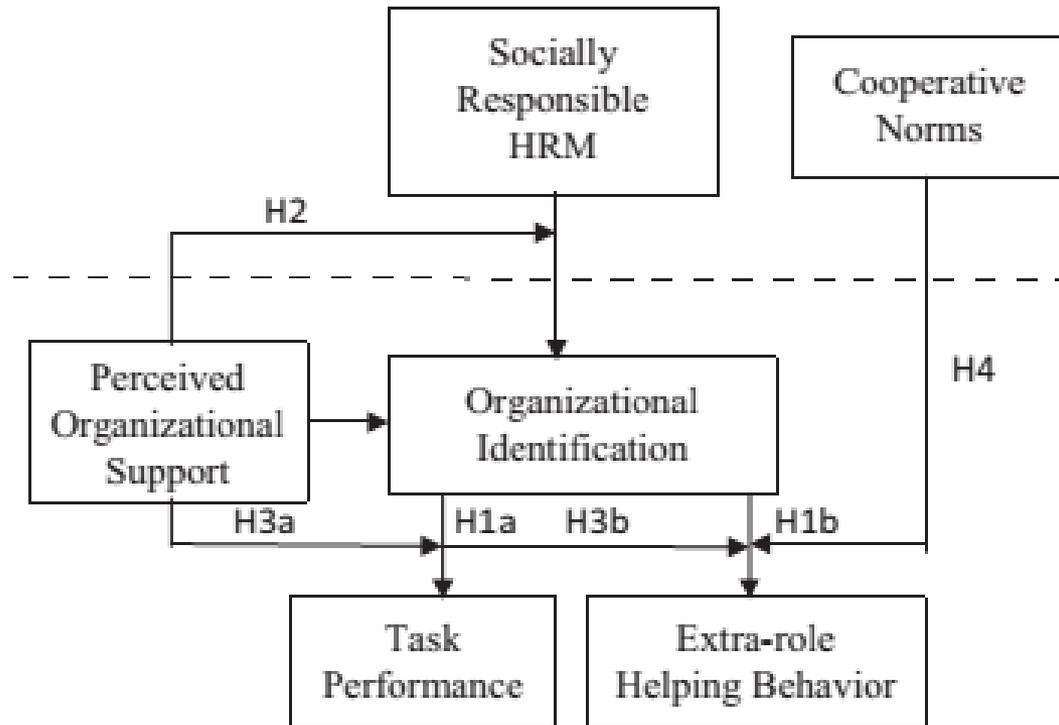
Complex Research Model: Two DV , one IV , one MV and two Moderating Variables

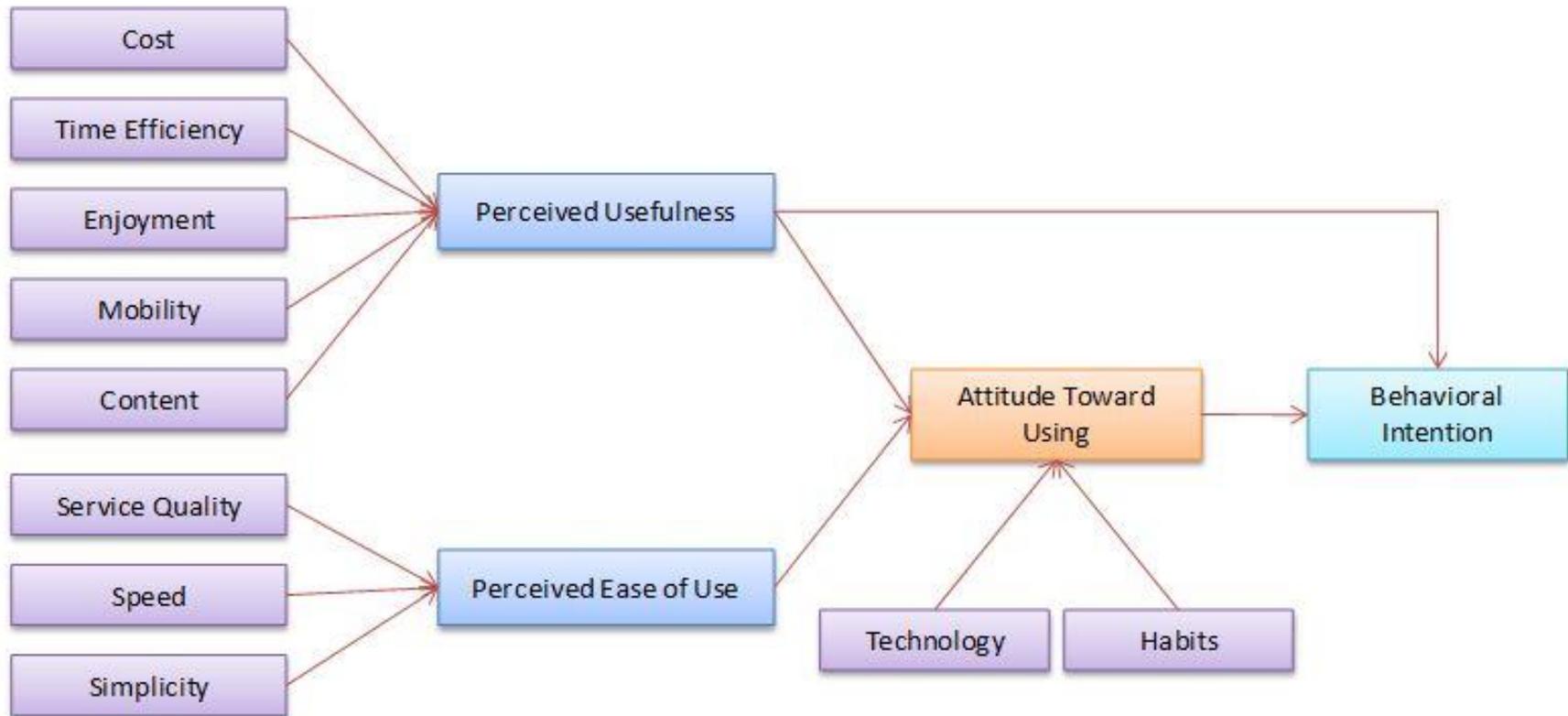# Examples of Conceptual Models from Different Fields: Human Resource Management
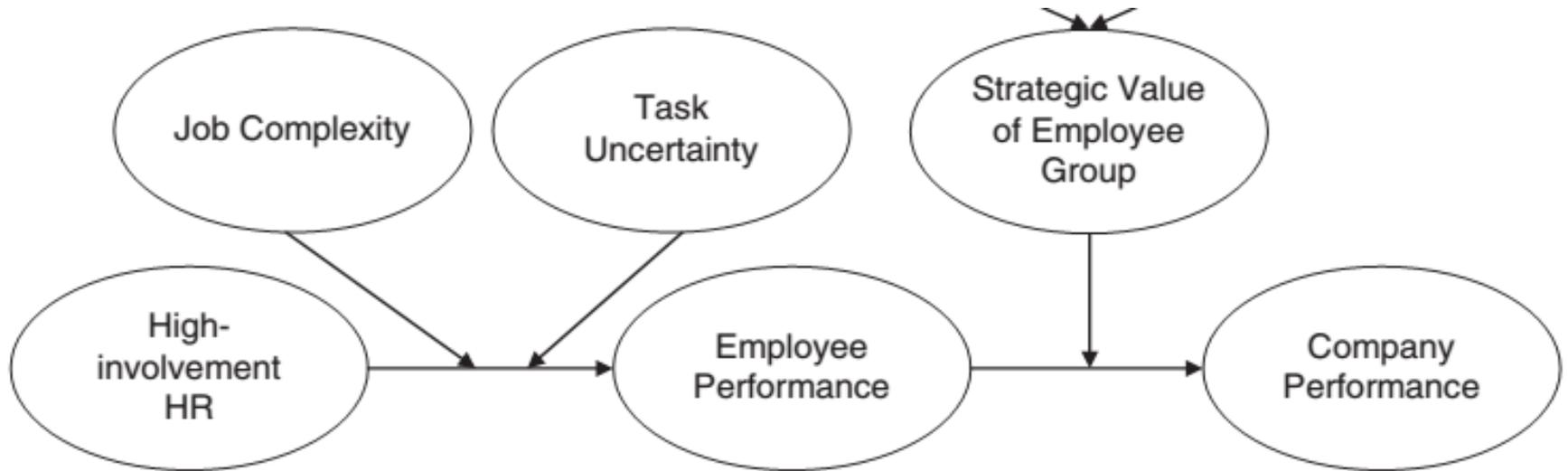
Complex Research Model: One DV, one IV, one MV and three Moderating Variables

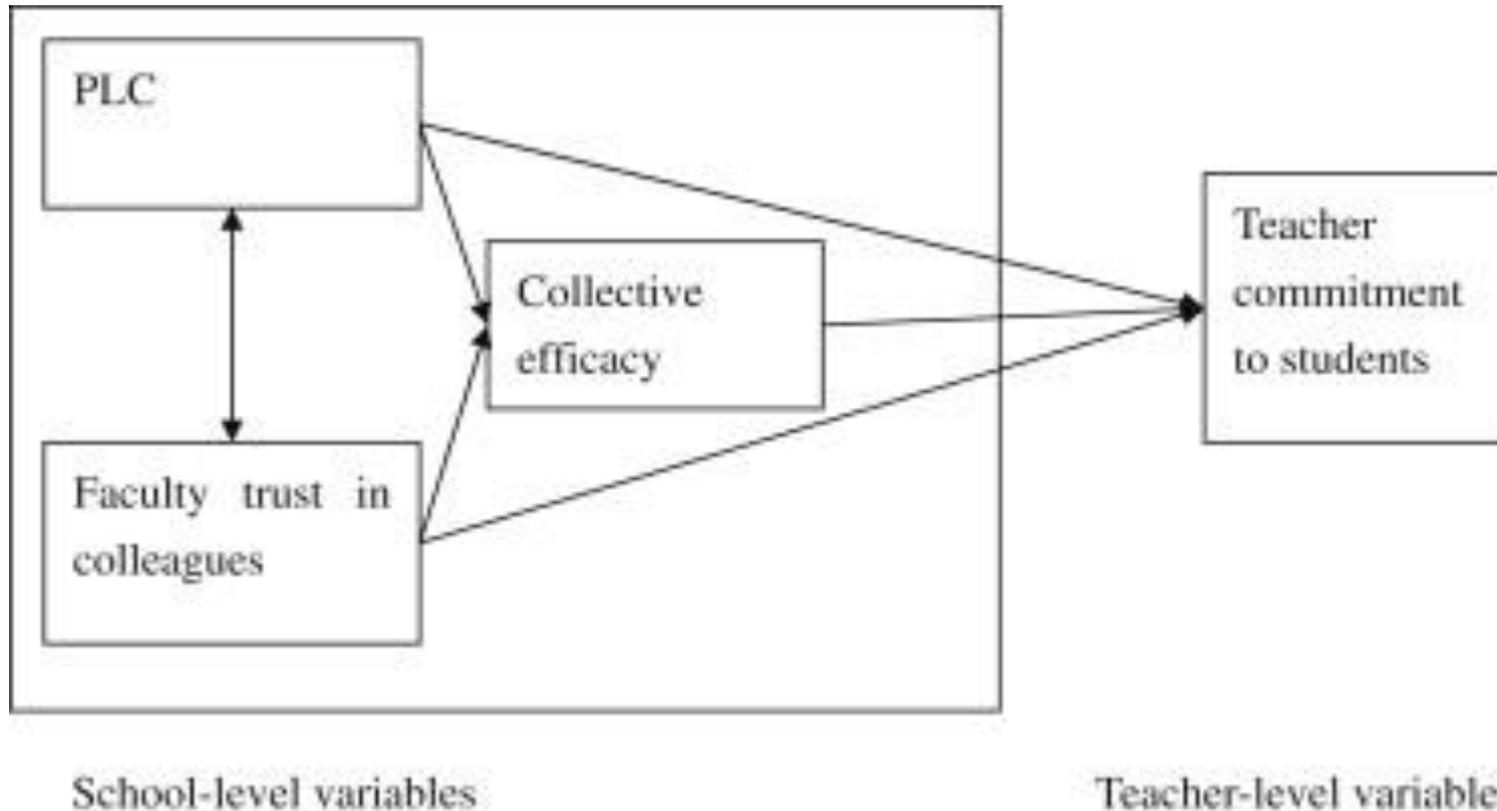# Examples of Conceptual Models from Different Fields: Education

THEORETICAL FRAME WORK:

Complex Research Model: Two DV , one IV , two Mediating Variables and one Moderating Variable

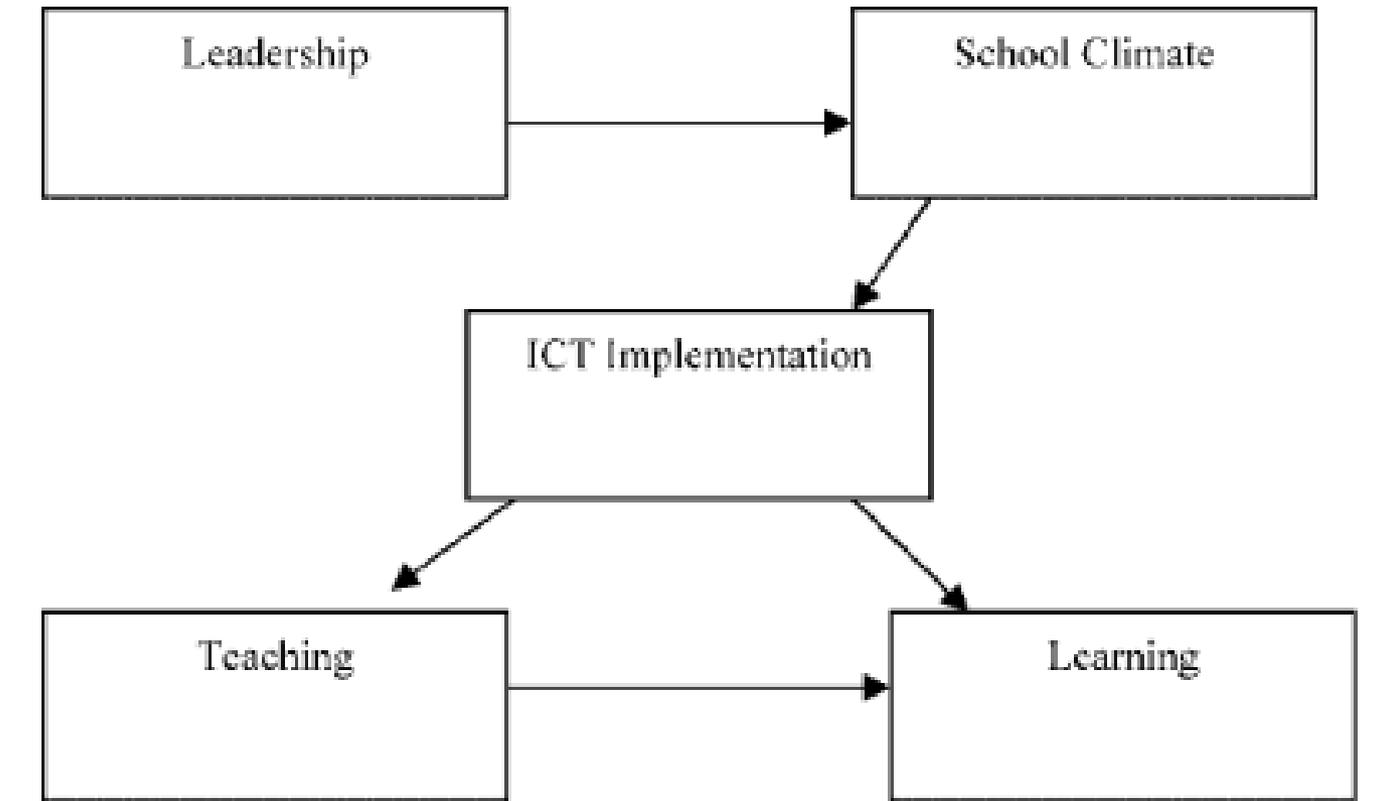# Examples of Conceptual Models from Different Fields: IT usage

Complex Research Model: one DV, Ten IVs , three Mediating Variables and none Moderating Variables
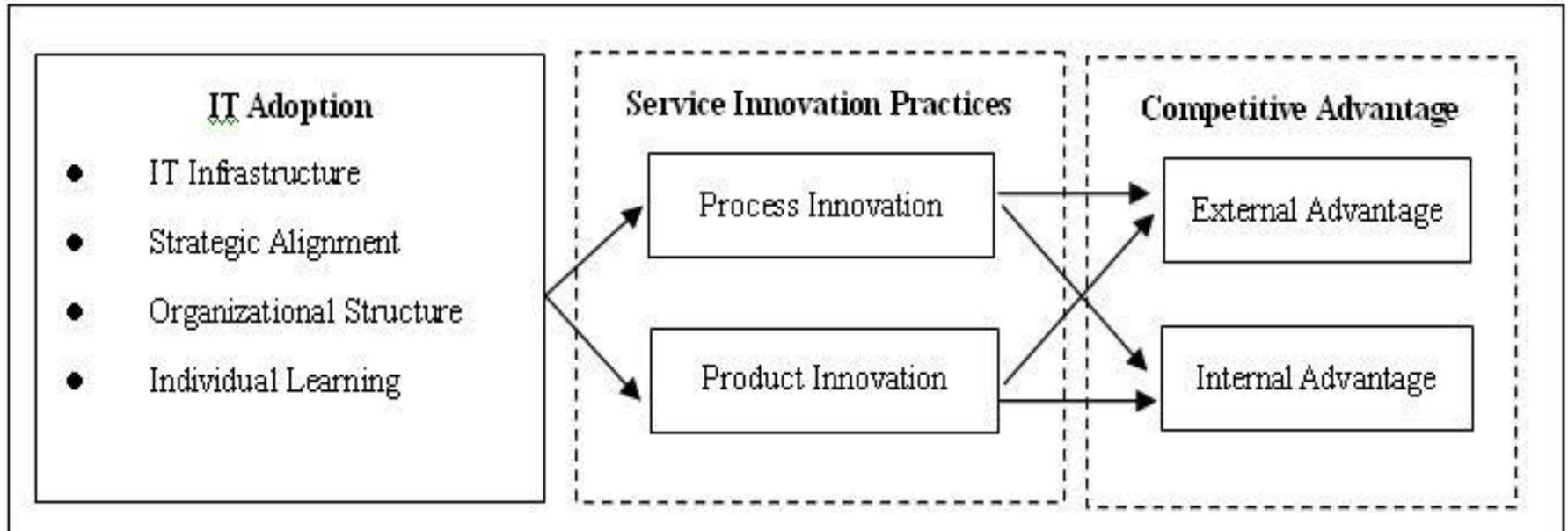
Examples of Conceptual Models from Different Fields: Education Management

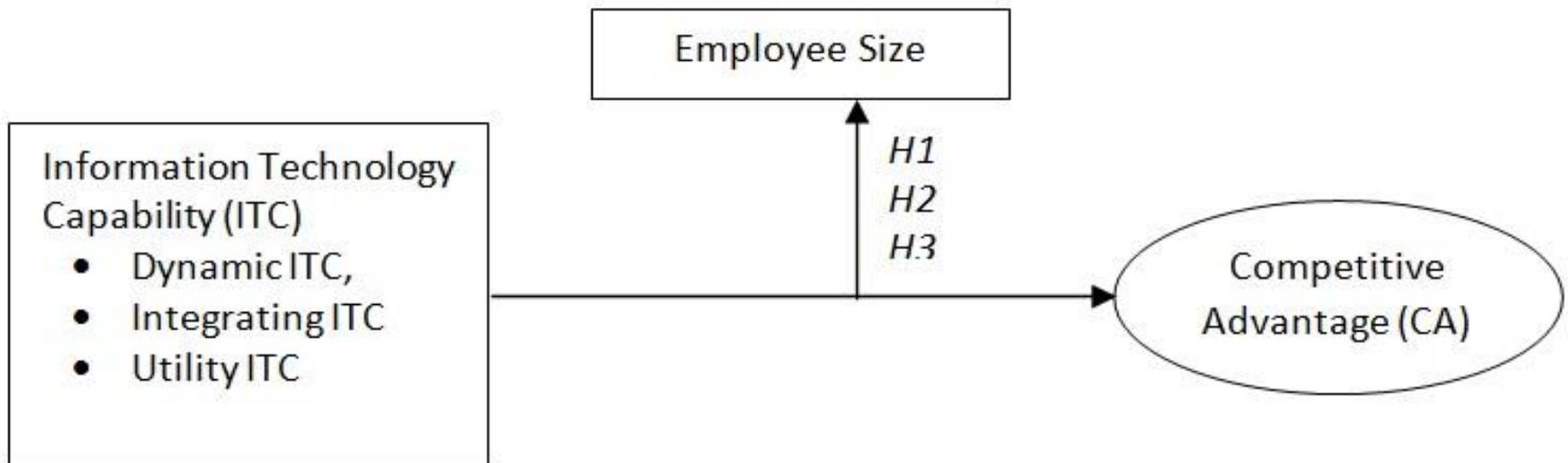School-level variables   Teacher-level variable

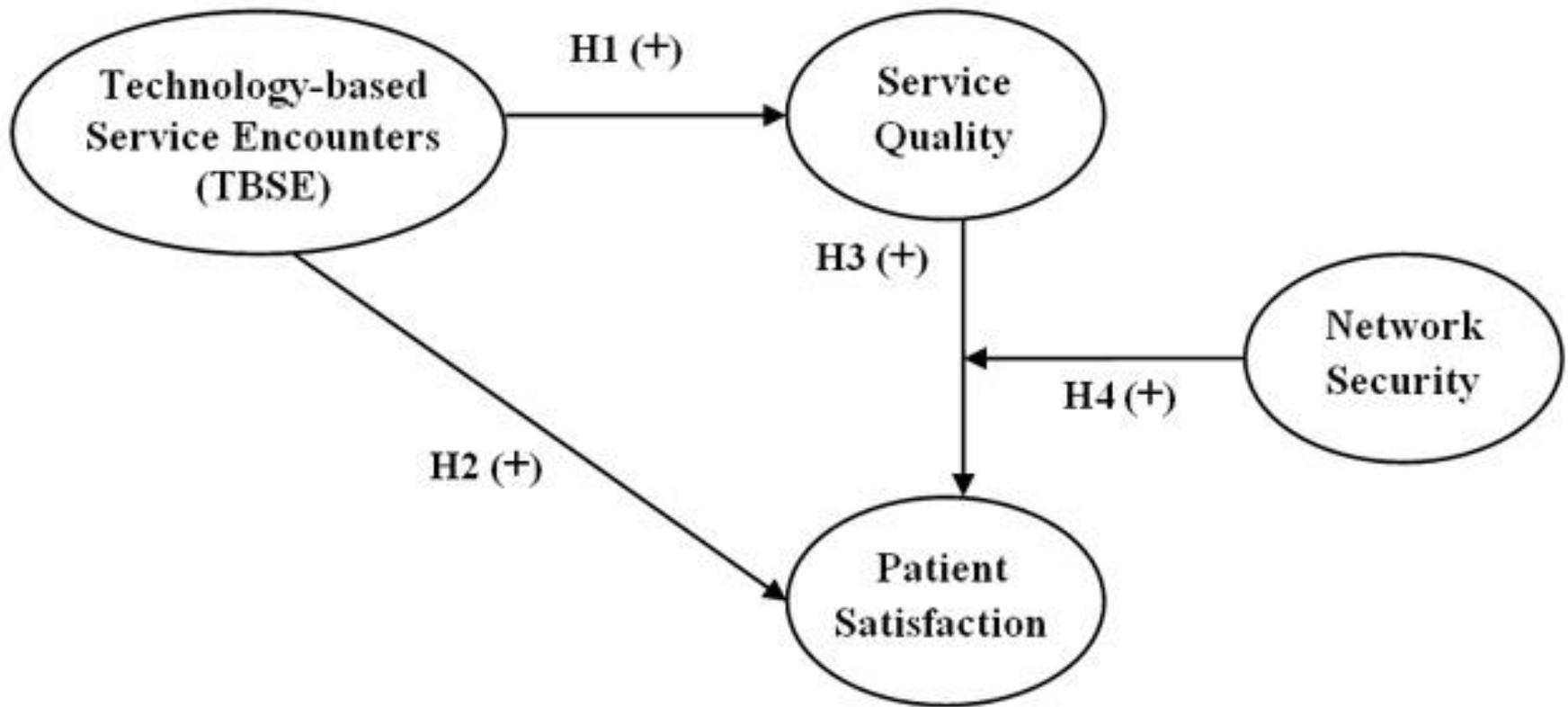# Examples of Conceptual Models from Different Fields: IT in Education

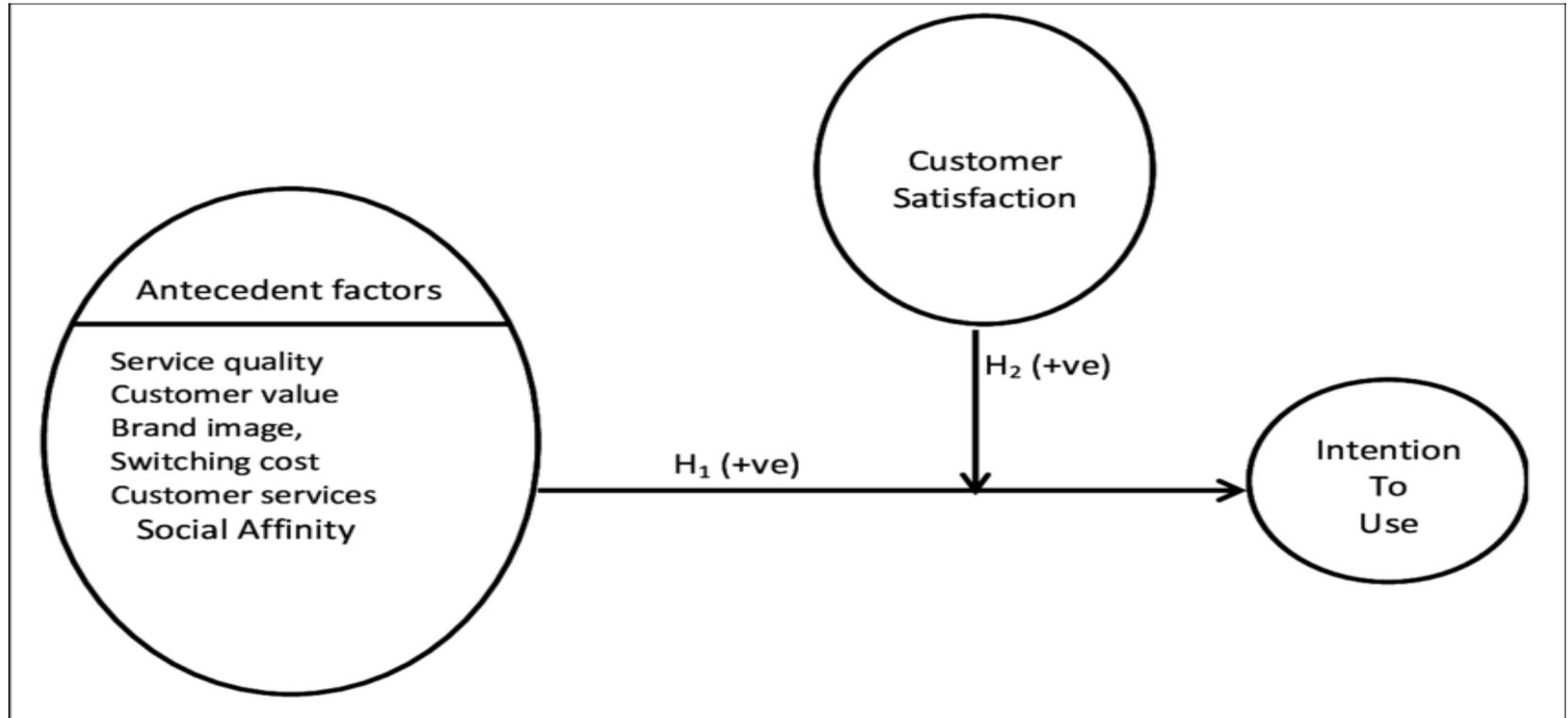# Examples of Conceptual Models from Different Fields: IT

Examples of Conceptual Models from Different Fields: IT
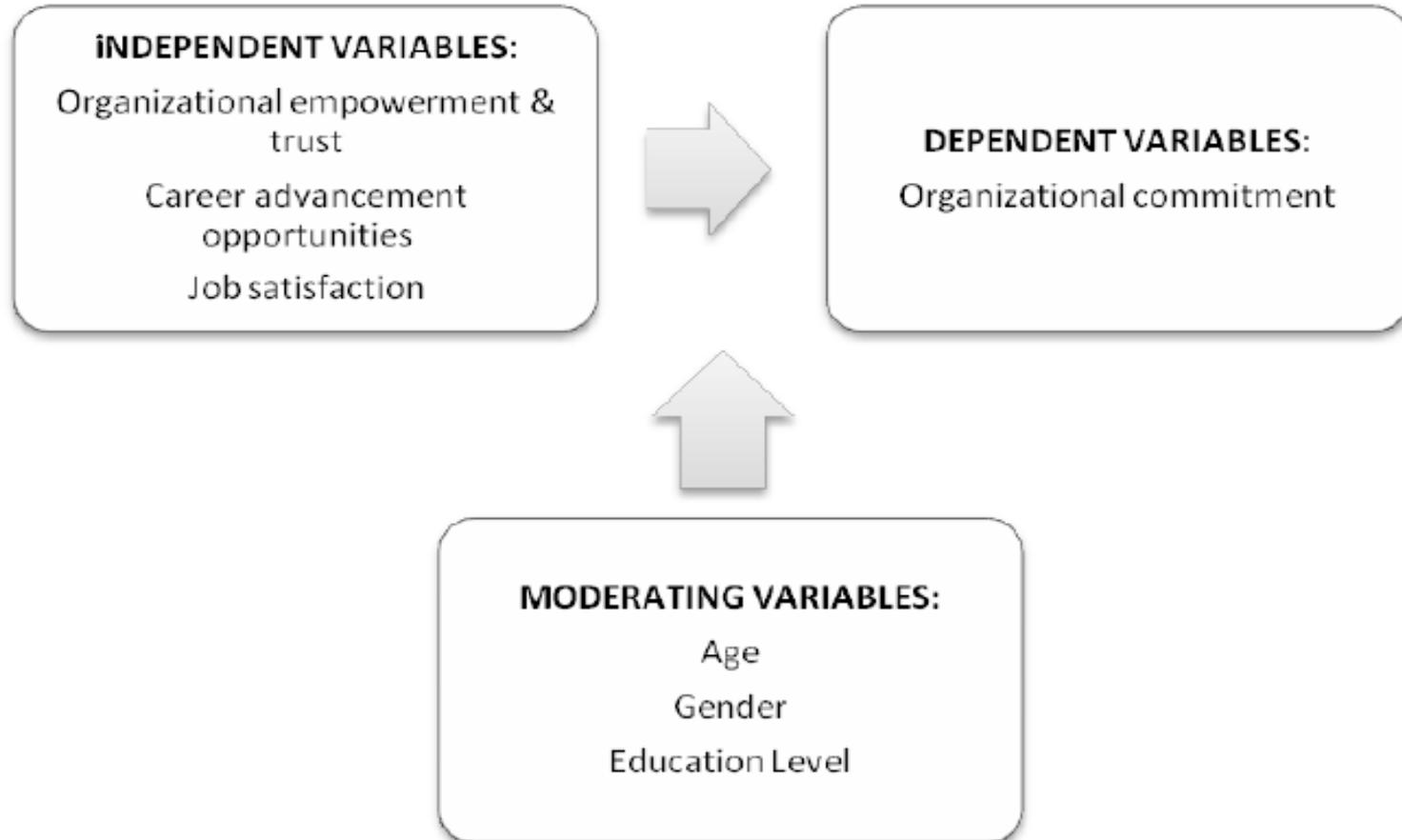
Examples of Conceptual Models from Different Fields: IT Application

# Examples of Conceptual Models from Different Fields: Marketing

Examples of Conceptual Models from Different Fields: Organizational Behaviour

iNDEPENDENT VARIABLES:

Organizational empowerment & trust

Career advancement opportunities

Job satisfaction

DEPENDENT VARIABLES:

Organizational commitment

MODERATING VARIABLES:

Age

Gender

Education Level

Examples of Conceptual Models from Different Fields: Human Resource Management

Figure 1: Theoretical framework of employees career development practices, career commitment, self-efficacy and career success.
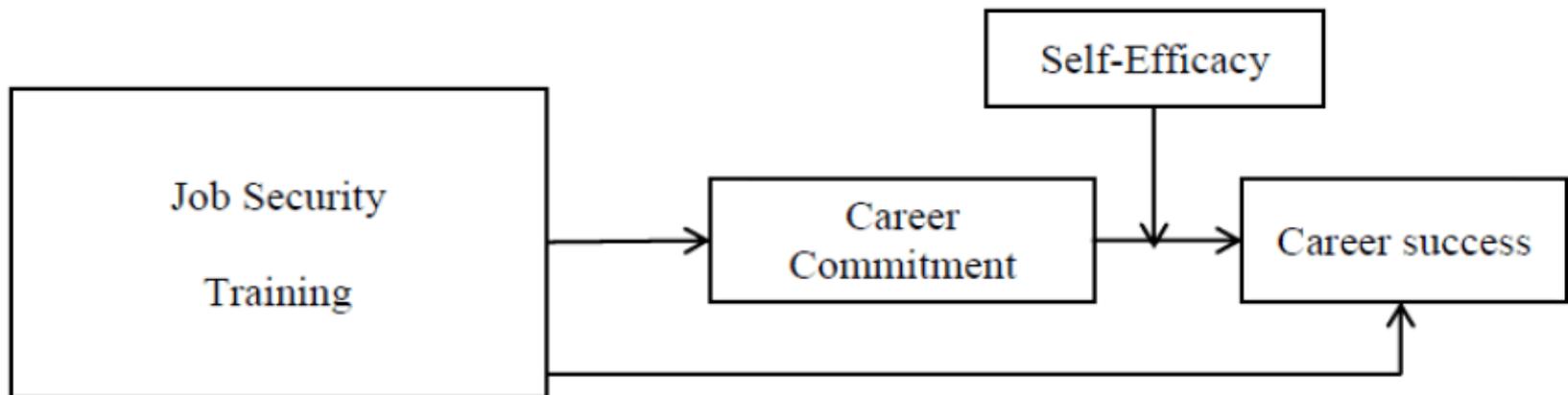
Презентация для каждой недели

1. Тема Исследования

2. Актуальность и Проблема исследования

3. Краткий обзор литературы и новизна

4. Цель исследования

5. Вопросы (ВИ) или гипотезы (ГИ) исследования (модель)

6. Обзор литературы и теоретическая база

7. Стратегия исследования

8. Методы исследования

Детали презентациии: Максимум -10-15 Слайдов (Длительность презентации максимум 10 минут, 5-10 минут Вопросы -Ответы)