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Research Methodology

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Chapter 1

What Is Research?

(Cont.)

OUTLINE

- **The Process of Research**

- **Intellectual Discovery**

- Classifying Research

- Research Methods

- Effective Research

THE PROCESS OF RESEARCH

- According to the literature, there are four standard views of the research process: *sequential, generalized, circulatory, and evolutionary.*

  1. *Sequential:*

     - The simplest view of all.

     - Here, a series of activities are performed one after another as a fixed, linear series of stages.

     - Accordingly, there are seven unique, sequential steps:

       I. Identify the broad area of study.

       II. Select a research topic.

       III. Decide on an approach to utilize in your research.

       IV. Plan how you will perform the research.

       V. Gather data and information.

       VI. Analyze and interpret these data.

       VII. Present the results and findings.

THE PROCESS OF RESEARCH (CONT.)

- According to the literature, there are four standard views of the research process: *sequential, generalized, circulatory, and evolutionary.*

    2. *Generalized:*

        ➢ It is similar to the sequential research process in that a specified series of actions is carried out sequentially (i.e., one after the other).

        ➢ But the strategy of the generalized process acknowledges that:

            o Not all phases are relevant in all situations, and

            o Certain processes may need alternative approaches depending on the nature of the study.

        ➢ Accordingly, alternate paths may be followed at various phases of the research process based on the nature and results of the study.

THE PROCESS OF RESEARCH (CONT.)

- According to the literature, there are four standard views of the research process: *sequential, generalized, circulatory, and evolutionary.*

  3. *Circulatory:*

     - Believes that each study is just a part of a continual cycle of discovery and inquiry.

     - So, the strategy here is that the research will reveal more questions than it will provide answers, and the research process may be restarted by trying to answer the new questions that have been discovered.

     - This include reviewing or reinterpreting previous phases of your work due to the gained study experiences.

     - It also includes allowing participants to join the research process at any stage in the process, and

     - Acknowledges that the process is never-ending.

THE PROCESS OF RESEARCH (CONT.)

- According to the literature, there are four standard views of the research process: *sequential, generalized, circulatory, and evolutionary.*

  4. *Evolutionary:*

     - Emphasizes the importance of research evolving and changing over time.

     - According to this process, the research should not:
       - be limited to following a defined circulatory pattern
       - repeat the same forms of analysis and interpretation that have previously been performed.

     - Also, here the results of each evolution influence the outcomes of subsequent evolutions to a greater or lesser degree.

INTELLECTUAL DISCOVERY

- Besides representing the research process using one of the aforementioned models, individual thinking processes and intellectual breakthroughs are also important and actually far more complicated.

- When searching for questions to answer and solutions to those questions, the one will often go through a complicated process of inductive and deductive reasoning to get the needed information.

  - *Inductive reasoning:* - Here, observations of the world lead you to general judgments about it.

    - You construct models and hypotheses based on your interpretation of the world.

    - The data and information you may gather from the world, the subject/problem you are investigating, and most significantly, your prior knowledge and beliefs will all influence your interpretation.

  - *Deductive reasoning:* - You begin with your current knowledge and comprehension of the world and make predictions about likely observations that will occur inside it, even if you have never encountered them before.

    - Because the comprehension differs from one to another, different people may draw different conclusions from the same information.

INTELLECTUAL DISCOVERY

- As a conclusion:

  o For better or worse, you construct your ideas, models, theories, and understandings on the foundation of your *inductive reasoning* about the world.

  o Wisdom, on the other hand, can be seen in your *deductive reasoning* talents, which allow you to apply what you know to situations and issues you haven't yet faced.

REFERENCES

- Meikang Qiu, Han Qiu, Yi Zeng. Research and Technical Writing for Science and Engineering. CRC Press, 2022.

Thank you ☺