

Assignment 1- Research Skills 1

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Scientific Research Definitions and Motivations

Assignment 1

Chapter
01

Scientific Research Definition

- Challenge to solve an unsolved problem is human nature. Man cannot tolerate facing an unknown stimulation which subjects to affect his existence for long, we always try to find a solution for the problem which we meet.
- Any kind of scientific effort to find a solution for a problem is a part of research and the whole effort of searching, gathering and analyzing for finding solution of problem is a research. Research always begins with a question and the question usually arises from known unsolved problem.
- Some people consider research as a movement, a movement from the known to the unknown. It is actually a voyage of discovery. Collection and analysis of relevant data to answer the question for unsolved problem are the fundamentals of research.

The following results synthesize expert perspectives and the primary drivers that underpin the modern scientific landscape.

1. Fred N. Kerlinger

Kerlinger defines research as a systematic, controlled, empirical, and critical investigation of hypothetical propositions about the relations among natural phenomena.

- **Systematic:** Organized to provide high confidence in results.
- **Controlled:** Variables are managed to rule out alternative explanations.
- **Empirical:** Conclusions are rooted in objective, real-world observations.
- **Critical:** Every step is subject to scrutiny and validation.

2. John W. Creswell

Creswell views research as a process of steps used to collect and analyze information to increase our understanding of a topic. It follows a three-part cycle: posing a question, collecting data, and providing an answer that connects to existing knowledge.

3. Paul D. Leedy

Leedy defines it as a systematic process of gathering and interpreting data to better understand a phenomenon. He describes research as "helical" (spiral)—it starts with a question, solves a problem, and inevitably leads to new, higher-level questions.

4. John W. Best

For Best, research is a formal and intensive application of scientific analysis. He views it as the engine of human cultural evolution, "pushing back the frontiers of ignorance" by discovering new truths and superior ways of doing things.

5. Clifford Woody

Woody focuses on the methodology: identifying problems, formulating hypotheses, collecting/organizing data, drawing conclusions, and—most importantly—testing those results to see if they match the original theory.

6. George J. Mouly

Mouly defines research as the systematic application of the scientific method to solve social science problems. He sees it as a "way of critical thinking" that allows humans to relate to their environment and resolve conflicts through organized data.

7. Richard M. Grinnell

Grinnell describes research as a structured inquiry using accepted scientific methodologies to create generalizable knowledge. He emphasizes the "scientific spirit," which demands evidence over rigid dogma.

8. Waltz and Bausell

They define research as a formal, rigorous, and precise process used to find solutions or to discover and interpret new facts and the relationships between them.

Chapter

02

Researcher Motivations

- Academic Excellence: Seeking professional prestige and a distinguished status within the global scientific community.
- Human Welfare: The desire to create medical or technical innovations that improve quality of life and protect the environment.
- Evidence-Based Policy: Providing the data needed for governments and institutions to make sound, non-random economic and social decisions.
- Intellectual Satisfaction: The pure joy of discovery and the mental fulfillment that comes from answering complex questions.

Chapter

02

Researcher Motivations

- **Innovation and Efficiency:** Developing better products and refining work methods to reduce effort and increase productivity.
- **Exploring the Unknown:** An innate drive to understand the biological, physical, and cosmic secrets of our universe.
- **Business Problem Solving:** Using tools like market research and operations analysis to solve complex industrial and planning challenges.
- **Personal Empowerment:** Building a systematic mindset to analyze daily challenges, leading to greater confidence and success in life management.

Conclusion

Scientific Research is a systematic, rigorous, and evidence-based journey that begins with a focused question and ends with verified knowledge. It is not just about gathering facts, but about controlling variables and critically analyzing data to ensure that the findings are objective, repeatable, and capable of solving real-world problems.

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Thank You

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01

تعريف البحث العلمي

البحث العلمي هو جهد منظم ومنهجي لحل مشكلة غير محلولة.

يبدأ بسؤال وينتهي بمعرفة موثقة.

هو انتقال من المعلوم إلى المجهول.

أساسياته:

• جمع البيانات

• تحليلها

• التحقق منها

1. كيرلنجر:

تحقيق منظم، مضبوط، تجريبي، نقدي

2. كريسويل:

عملية جمع وتحليل بيانات للإجابة عن سؤال

3. ليدي:

عملية حلزونية تبدأ بسؤال وتولد أسئلة جديدة.

4. بيست:

محرك تطور الثقافة البشرية

5. وودي:

تحديد المشكلة، صياغة الفرضيات، اختبار النتائج

6. مولي:

تطبيق المنهج العلمي لحل المشكلات الاجتماعية

7. غرينيل:

استقصاء منظم لإنتاج معرفة قابلة للتعميم

8. والتز وباوسل:

عملية دقيقة لاكتشاف حقائق جديدة

دوافع الباحث

- التميز الأكاديمي
- خدمة الإنسانية
- دعم السياسات المبنية على الأدلة
- الإشباع الفكري
- الابتكار وتحسين الكفاءة
- استكشاف المجهول
- حل مشكلات الأعمال
- التمكين الشخصي

الخاتمة

البحث العلمي رحلة منهجية صارمة قائمة على الأدلة، تهدف إلى إنتاج معرفة موضوعية قابلة للتكرار، وقادرة على حل مشكلات واقعية.

المراجع

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Thank You