Lec1 Research

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| Lecture1: **What is research?** Questions guiding the lecture * What is research? How do scientists and non-scientists acquire new knowledge?
* What are the characteristics of research?
* What are the steps of research?
* What are the sources of research problems and research questions?

**What is research?**A systematic process that attempts to answer research questions and respond to research problems. This form of inquiry goes through the careful steps of formulating a question, collecting data, analysing it and drawing conclusions based on the interpretation of the obtained results. The process of research is motivated by the purpose of expanding knowledge and improving understanding of a particular issue or addressing a pressing problem.**What are the characteristics of research?**Research is different from other forms of inquiries that laypeople may engage in. It is distinguished with a number of characteristics. Research is systematic, empirical, objective, replicable and self-correcting. * Research is systematic: research goes through clearly defined steps and follows specific procedures. Following a system of rules excludes any reliance on guessing or intuition to draw final conclusions. Any form of knowledge increasing which does not abide to systematic rules of inquiry is considered flawed. This characteristic does not disregard , however, the versatile and creative nature of research.
* Research is empirical: research relies basically on observation and on experimentations.
* Research is replicable: the steps of research are explained thoroughly to allow conducting the same research another time by the same researcher or by other ones. Replicated research allows the verification of findings and allows reaching conclusive results.
* Research is objective: acceptable scientific research is not biased. It does not select the evidence that fits the investigator’s views. The objectivity characteristic ensures the correction of any flawed step and increases the reliability of the interpretations and results.

**How do scientists and laypeople acquire new knowledge?**

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| Scientists  | Laypeople/ non-scientists  |
| 1. Rely on careful observations
2. Their approach to understand the world is systematic, controlled, and methodical
3. Try to control extraneous sources of influence before explaining any relationship occurring among phenomena.
4. Sources of bias are identified prior to research and are avoided.
5. Draw valid and reliable conclusions
6. Knowledge is based on objective data obtained at the end of a research process/ scientific investigation
7. Scientific knowledge results from the accumulation of empirical evidence.
 | 1. Rely on casual observations
2. Their way/ approach to understand the world is informal
3. Explain the occurrence of phenomena without controlling extraneous sources of influence.
4. Can be intentionally or unintentionally biased.
5. Draw unreliable conclusions
6. Knowledge is based on people’s opinions, feelings or intuition.
7. Knowledge results from reference to feelings, hunches, gut, and instinct.
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**What are the steps of research/ scientific investigation?** Research can fit in different types and can follow different approaches. However, irrespective of its type research goes through a basic sequence of steps. This sequence is not always linear. Some reiterations are necessary for research steps. Also, it is possible to simultaneously work on more than one step at a time. For example, a researcher may start his research project with a research question, then he moves to reading past research in order to design a research plan, after which he may reconsider the research question. Though the research question is widely accepted to be the first step of research it can be refined repeatedly in subsequent steps and particularly while reviewing past research. Below are the basic steps in the procedure of research.* **Research problem:** a description of the problem is a starting point for any researcher to justify his investigation and to advance a strong argument as a foundation for the intended research project. It should be clear who is affected by the problem, what factors led to its existence, and what unsatisfactory situation resulting from it. With the research question, a hypothesis may be possibly provided. The value of clearly stated research questions and hypotheses lies in providing focus and direction to the whole process.
* **Read previous research**: to review what has been researched about the problem helps in clarifying how the planned study will add to the previous knowledge. The review of past research also places the research contribution in its broader context and identifies the research gap in the area of research. Other studies can be found in research journals, dissertations, research reports, monographs, or books. The review of the literature aids the researcher in locating and summarising the findings of the reviewed studies. Highly critical and evaluative thinking skills have to be used when browsing relevant research.
* **Design a plan for collecting data** (sample, instrumentation): in this stage, the researcher plans and makes decisions on the procedure of collecting data and the participants involved in data collection. A researcher plans activities and decides upon their timing, place, and required tools.
* **Analyse data:** select and use the appropriate techniques (whether statistical software, or other) to analyse the obtained data. For example, statistical tools help in confirming or rejecting hypotheses.
* **Draw conclusions:** this is the step where the interpretation of data is used to draw conclusions and to answer the research questions posed at the beginning of the research process.

**What are the sources of research problems and research questions?** Investigators embark on conducting research starting from a problem or a question they found. These research problems can come from personal experience, from reading about a specific topic, from suggestions provided by researchers at the end of the discussions of the results they obtained. Personal experience: practical problems are incessantly faced in every field. Addressing any problem requires investigations on this problem, the factors that cause it, the category of individuals/ parts most likely affected by this problem, or the possible solutions that can solve it. Suggestions for further research: after going through the steps of investigation, researchers suggest areas of the research topic that need to be explored as well as on alternative methodological procedures to be followed. **What is the importance of research?** Reliable research is reached only if systematic procedures are followed. Researchers decide to engage in the process of research because of the important roles played by research results in different settings. First new reliable knowledge is increased. For example, if a teacher-researcher faces a problem in her language classroom and she reads about it, but she does not find satisfying information, she may think of conducting action research to address the research gap she has noticed. The existing literature provides answers to many issues raised by specialised people in different areas; however, gaps of unexplored areas are the starting point for new research. New research is a contribution that adds to existing research.Moreover, professionals perform more effectively in their field when they are guided by the research results. To cope with problems faced in language classrooms, for example, a specialist in education refers to results obtained from research and tries new practical ideas. The usefulness of research can be seen in real-life settings by suggesting new ideas, providing alterative solutions to existing situations. besides expanding knowledge and contributing to practice, research offers a foundation for decision makers to decide upon important choices. When debates divide decision makers into divergent positions, research provides data-based evidence for them to justify the position they select.  |