Teaching Methods
Laboratory

Purpose
The purpose of the laboratory is to test concepts or theories through experimentation—in other words to encourage learners to use tools that allow them to test and transfer theory to practice. Computer labs are one of many tools used to test specific methods and/or apply analyses to answer specific research questions.

Goal
Labs provide an opportunity for students to learn a series of developmental steps to help in answering a research question. The goal is to highlight the many graded steps that need to be followed in order to obtain information about the question and/or theory being tested.

Strengths
The laboratory experience provides learners with "actual experience" and allows learners to practice and test various scenarios. The main advantages of using labs as part of classroom learning are that labs can (Knowles, 1950, 45):

- provide alternatives for enhancing student learning. For example, students can learn and practice the usage of statistical software that they will use in their research;
- address learning goals more directly as learners have opportunities to apply and practice what they have learned in a relatively controlled environment. For example, instructors can ask learners to run a set of analyses and interpret the results as a way of encouraging learners to apply knowledge and understand more difficult or complex concepts;
- prepare learners for real life situations where they will have to use certain applications for their work or research.

Successful incorporation of teaching tools such as labs, are effective when they are aligned with course goals and objectives; match the goals of teaching; and allow opportunities for learners to apply and practice what they know so as to enhance the learning experience.

Weaknesses / Suggestions for Improvement
The laboratory experience requires more time than some other methods; a great deal of planning on the part of the teacher; and also requires detailed instruction concerning how to use lab tools (e.g. computer software).

Considerations when teaching in a computer lab (McKeachie, 2006, 232–38):

- Are applications appropriate for learners?
- Are course content and outcomes related?
- Is teaching style appropriate for the context?
- What is the instructor's own experience with technology (skills and confidence)?
- What kind of exposure and access do students have to technology?
- What skills and knowledge should learners acquire by– the end of the class?
- What is the instructor's role as a teacher?

References

Knowles, M. S. (1950). *Informal Adult Education: A Guide for Administrators, Leaders, and Teachers*. New York: Association Press.

McKeachie, W. J., & Svinicki, M. (2006). *McKeachie's Teaching Tips: Strategies, Research, and Theory for College and University Teachers*. Boston: Houghton Mifflin.