

CHAPTER

1

Overview of a Systems Approach to Education and Program Planning

Chapter Objectives

- Discuss general system theory.
- Describe the various elements of general system theory.
- Briefly describe the components of a systems approach to education and program planning.
- List the combination of skills important for health promotion and for health care practitioners.
- Explain the advantages of a systems approach to program planning.
- Discuss some of the constraints that may impact the success of programs.

Introduction

The purpose of this chapter is to give an overview of system theory and then to show how systems thinking can be applied to health education and program planning.

An Overview of General System Theory

- A. German biologist Ludwig von Bertalanffy was one of the first to propose the concept of *General System Theory* as far back as the 1940s.^{1,2}
 1. System theory has been applied to math, science, research, technology, industry, education, policy, management, and organizations.
 2. It is a way to solve problems in that the whole system as well as the interaction between the parts is considered.
 3. Systems that are *open* interact with the world outside the system.^{1(pp36-44)}
 4. A system as a whole works differently than the parts of a system; the whole is often greater than the sum of the parts.^{3(pp11-12)}
 5. Principle: a system has functional identifiable parts that communicate efficiently and affect each other.^{3(pp11-17)}

6. A system has several components, including: elements, interconnections, function or purpose (both tangible and intangible), and feedback.^{2,3(pp11-17)}

Consider the following in applying these concepts to program planning:

- *Elements*—all of the tangible elements of the program would include all the people, facilities, materials, budget, mission, and participants. Examples of intangible elements would include morale, confidence in ability to succeed, the feeling people have about their work and working together, and whether they think the program is important.
- *Interconnections*—the relationships among the program parts that work together to result in achieving something. Consider how the budget, the people involved, the program materials, and the communication system all work toward a successful program.
- *Function and Purpose*—rationale, the reason behind the program or organization. There may be conflicting purposes between people involved or between different departments. When developing a program, it is important to be aware of these. Purposes may become clear through how people and the system behaves more than in the stated goals.^{3(p14)}
- *Feedback*—the result of reviewing data and evaluative information and then using this to improve the system—in this case, the components of the program plan where needed. For example, program feedback can come from observing the participants during the process of the program, from informal and formal assessment of progress of the participants, or from the feedback from the organization and program personnel involved. The goal is to use the feedback to improve the program, resulting in a more successful outcome.

7. Systems thinking has been applied to health education and program planning⁴⁻⁸ as well as to health professional education.⁹⁻¹² These are just a few examples; there are numerous other examples that can be found in literature or on the Internet.

A Systems Approach to Education and Program Planning

- A. A systems approach provides a generalized logical approach to designing programs and units of instruction.
- B. A systems approach is designed to emphasize the outcomes or competencies that participants will demonstrate.
- C. Health education and health professional education may reflect a combination of skills related to:
1. *Cognitive domain* (knowledge)
 2. *Psychomotor domain* (demonstration of skills)
 3. *Affective domain* (attitudes and values)
- D. A systems approach provides a process for considering the essential parts of the planning, implementation, and evaluation of single unit of instruction, a program, or an entire curriculum.
- E. *System* implies an interconnectedness of the parts (refer to Systems Approach diagram in Figure 1-1). **Note:** The puzzle pieces are used to illustrate that the program planning parts fit together to form the whole. Information from formative and summative evaluation is feedback into the system parts and is used to make improvements to work toward a more successful program.
- F. When evaluation results are not successful, each part of the system is reviewed to determine where adjustments are needed.
- G. This system can be used for a variety of different types of program plans, including:
1. Community health education and promotion.
 2. Patient education.
 3. Work site health promotion.

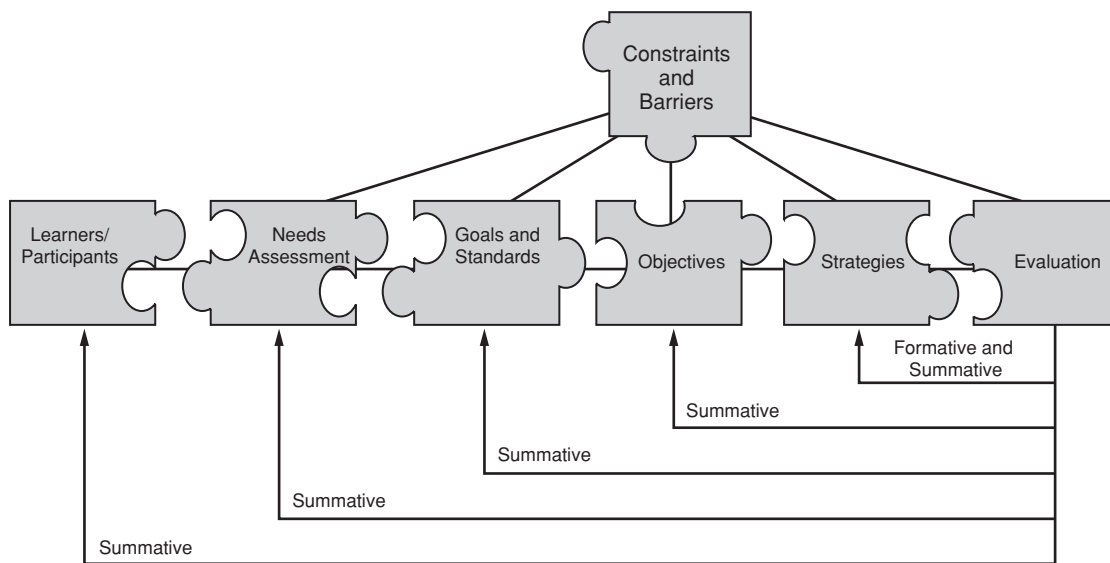


Figure 1-1 A systems approach to health education and program planning.

Source: © Mary E. Watson. Illustration by Zachary M. Hayes.

4. Designing staff education.
5. Clinical instruction for health professionals.
6. Development of a single lesson, course, or a whole curriculum.
7. Development of programs on a local, state, or national level.

H. Advantages of a systems approach include:

1. Participants can identify the intent of the program.
2. Learners know what they are expected to learn.
3. Instructors know what they will be teaching.
4. Knowledge, skills, and behaviors expected to change are identified.
5. What learners can do at the end of instruction is documented.
6. Provides a model for identifying problems so that steps can be taken for correction or improvement.
7. Programs can be revised based on assessment and evaluation data.
8. A program can be transferable in whole or in part, providing the new setting meets the needs of the program.

The Beginning of Instructional Design: The Learners/Participants

- A. Consider that learners have specific needs, abilities, values, knowledge, skills, and learning styles.
- B. The learners may be an individual, a group of people, or a community.
- C. The learners are referred to as the priority population⁴ or target population.⁵⁻⁸
- D. Beginning the program planning process involves the following:
 1. Using a collaborative approach with the participants/community.
 2. Empowering participants even if in small ways.
 3. Giving participants/community choices whenever possible.
 4. Making participants an integral part of the program development and learning process.

Mission Statement

- A. Is the first step of planning.
- B. A statement that contains information about the overall direction and purpose of the program or organization.^{4(p139),5(p31)}
- C. Is broad enough to be adaptable yet has a focus.
- D. May have a mission of the organization and then a program mission that fits into the larger mission.
- E. Affects resource allocation, which depends on how well the program mission fits into the mission of the organization.
- F. Should serve as a motivation for planners and participants.

Needs Assessment

- A. Provides data that gives the program designer information to present relevant material and provide a program focus.
- B. Provides justification for the program.
- C. Can identify programs that are working well and where there are program needs or service gaps.^{5(pp90-91)}
- D. Considers the needs of the participant population whether they are individuals, a community, or a group.
- E. Considers the physical, financial, and personnel resources needed of the program.

Goals and Standards

- A. Goals are broad statements of direction and purpose.
- B. Goals identify what is expected at the end of the program.
- C. Goals will reflect the needs assessment and fit into the mission statement.
- D. Goals provide guidance for the establishment of objectives and for ongoing planning and activities.
- E. Goals are not directly measurable without evaluation criteria delineated.
- F. Standards are the evaluative criteria for acceptable performance.
- G. Standards determine whether or not the program was successful.
- H. Standards may be equivalent to program or outcome objectives.

Objectives

- A. Objectives are short-term, measurable, specific activities that include a time element.^{5(p69),12(p62)}
- B. Objectives work toward reaching the goals of the program.
- C. Objectives address what is expected to change in the target population.
- D. Different types of objectives are written for program planning to include administrative, learning, behavioral, impact, outcome, and environmental objectives.^{4(p141-144)}
- E. Learning objectives address the cognitive, psychomotor, and affective domains.

Interventional, Teaching, and Behavioral Change Strategies

- A. These strategies are methods of teaching and activities designed to help the participant achieve the objectives and ultimately the goals.

- B. Interventional strategies may include but are not limited to health communication, education, policy, environmental change, and community mobilization strategies. ^{4(pp202–216),8(pp87–89)}
- C. A variety of teaching strategies should be designed to consider different learning styles and reading abilities.
- D. Behavioral strategies are incorporated to help participants achieve behavioral change.
- E. Alternative strategies are designed when evaluation indicates that participants are not achieving the objectives.

Evaluation

- A. Evaluation is the method to determine if goals, standards, and objectives have been met.
- B. Evaluation occurs during the program/course (formative). It is used to implement alternative strategies.
- C. It occurs at the end of the program/course (summative).
- D. Long-term follow-up evaluation is needed to determine the outcome after the program has been completed. These evaluative criteria are written as standards for evaluation.
- E. Results are used to make changes where needed to accomplish more positive outcomes.
 1. Prerequisites reconsidered
 2. Program goals reviewed
 3. Objectives reconsidered
 4. New strategies introduced where needed
 5. Reliability and validity of evaluation procedures considered

Constraints or Barriers

- A. Limitations that interfere with the learning process or with successful outcomes.
- B. Can occur anywhere in the system.
- C. Not always within control; however, recognize and limit them as much as possible.
- D. Examples of constraints in each chapter.

Questions

The following questions are designed to help you process the information in this chapter and to understand how the parts of educational design fit together. You will be studying each part of the system separately in subsequent chapters. For now, study the diagram at the beginning of this chapter, note the connectivity of the parts, and consider the following:

1. Describe the components of systems thinking and how they are incorporated into the systems approach model.
2. Look at the evaluation system and the arrows referring back to each part. Describe how you think the evaluation results can be used to correct problems in the system.
3. Give an example from your background that illustrates how evaluation results were used (or could have been used) to correct a problem you or your classmates were having with a course.
4. What is the importance of requiring skills and competencies for the cognitive, psychomotor, and affective domains in preparing health professionals or in health promotion programs?
5. How do goals differ from objectives?
6. Describe how the mission statement may impact a program.
7. What might happen if a program designer does not do a needs assessment?

8. Consider a course or program that you have attended and describe all the different strategies that were used. What was the most helpful for you?
9. Recall a behavior you have tried to change. What strategies did or did not work in helping you achieve your goal?
10. Can you think of any constraints or barriers the academic calendar puts on programs that are using a goal-oriented/outcome-oriented approach? How might you address these constraints?
11. What are some examples from health education in the community that place constraints on a goal-oriented/outcome-oriented approach to program planning?
12. Write down any questions about the systems approach that you have at this point.

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