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ABSTRACT

The Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) was developed to measure adult learning strategies in real-life learning situations. SKILLS consists of a series of 12 scenarios from real-world situations that reflect Shirk's (1990) nine general categories of learning for real-life situations and that necessitate various types and levels of learning. Questions assess how likely an individual is to use specific strategies for dealing with the learning problem. The instrument can be completed in 20 minutes and can be self-scored. SKILLS is based on five aspects of the learning process: metacognition, metamotivation, memory, resource management, and critical thinking. Field tests with 253 adult learners showed that SKILLS has construct, content, and criterion-related validity and that it is reliable. SKILLS is being refined to increase the discriminating power of individual items, to strengthen its reliability, and to make it more relevant to respondents. The final form of the instrument may be used to help people think about how they learn and to test various learning strategies with adults. (The SKILLS inventory is included in this document. There are 36 references.) (KC)

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Assessing Adult Learning Strategies

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Learning Strategies

While "learning styles are cognitive, affective, and physiological traits that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Keefe, 1982, p. 44), learning strategies are the techniques or skills that an individual elects to use in order to accomplish a specific learning task. Learning strategies differ from learning style in that they are techniques rather than stable traits and they are selected for a specific task. Such strategies vary by individual and by learning objective. Often they are so customary to learners that they are given little thought; at other times much deliberation occurs before a learning strategy is selected for a specific learning task.

In a sense, today's attention to learning strategies grew out of the continued interest of many learning specialists in study skills. Although study skills have been taught for nearly a century in higher education, "what is different today is that we have a better theoretical understanding of the reasons these study strategies work. Cognitive psychology has developed a set of laboratory research studies and theoretical concepts that are much closer to the natural learning settings in which study strategies have been applied" (McKeachie, 1988, p. 3). While learning strategies have grown out of the tradition of study skills, they differ significantly from that tradition. "What is new with the current interest in learning strategies is that it can be based on an emerging cognitive theory of human learning and memory" (Mayer, 1988, p. 21). Rather than skills in note taking, outlining, and test passing, learning strategies tend to focus on

solving real problems involving metacognitive, memory, motivational, and critical thinking strategies.

Real-Life Learning

One of the major characteristics of adult learning is that it is often undertaken for immediate application in real-life situations. Sternberg (1990) points out that there are many differences between learning for everyday problems and learning for academic or test-taking situations. First, adults must recognize problems in the real world rather than have problems identified for them by someone such as a teacher. Second, problems have to be not only recognized but also defined because the way they are defined will determine how they are solved. Third, while problems in academic situations are usually well-structured, real-world problems seldom are. Fourth, real-world problems are highly contextualized while school problems are decontextualized. Sixth, relevant information is given for school problems while in real life it is often difficult to discover where to get information or even to know what information is relevant. Seventh, solving real problems often requires the examination of arguments from the opposing side while most school problems teach people to confirm what they already believe. Eighth, while one usually gets clear feedback in school on problems faced, there is seldom clear feedback on real-life problems--until it is too late. Ninth, while academic environments encourage individual solutions to problems, adult problem solving is usually arrived at through group decision processes. Thus, the assessment of adult learning strategies requires that learning episodes be characteristic of real-world

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problems rather than artificial academic situations.

In investigating the resources used by adult learners and the economic impact of learning activities on a community, Shirk (1990) uncovered nine general categories of learning for real-life situations. These types of learning activities are vocational, domestic, interpersonal, religious, medical, recreational, cultural, political, and other (p. 44).

SKILLS

Since no instrument currently existed to measure adult learning strategies in real-life learning situations, the staff at the Center for Adult Learning Research at Montana State University developed the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS). SKILLS consists of a series of 12 scenarios from real-world situations which reflect Shirk's learning categories and which necessitate various types and levels of learning. Questions assess how likely an individual is to use specific strategies for dealing with the learning problem. The instrument can be completed in less than 20 minutes and can be self-scored. SKILLS is based upon five aspects of learning which are essential to the learning process and that have the potential for improvement through the refinement of learning strategies. These are the constructs of metacognition, metamotivation, memory, resource management, and critical thinking.

Metacognition

Metacognition is popularly conceived of as thinking about the process of learning. The concept was introduced into cognitive psychology in the 1970's by Flavell (1976). Others, such as Brown (1982) and Yussen (1985) soon joined Flavell to develop this construct by observing active, knowledgeable learners who had the ability to reflect on and control their learning processes. Such learners appeared able to make their learning activities more efficient. Thus Brown's model of metacognition emphasizes self-regulatory tactics used to insure success in the learning endeavor.

During the early part of this decade cognitive psychologists have investigated extensively

metacognitive abilities in children especially as they relate to study skills, attention, memory, comprehension, and information processing in reading and math. While the concept of metacognition remains a bit hazy, perhaps because various authors attempt to include more and more within the construct, it has become evident that the learner who is conscious of his or her learning processes exercises more control over those processes and becomes a more effective learner.

Although metacognition has not been a commonly used term in adult education, the concept is not unfamiliar in the literature. In describing their adult learning principles, Brundage and MacKeracher (1980) wrote that "learning how to learn...requires that the learner be able to conceptualize his own learning process and be able to pay some attention to how he goes about learning...[and] trust himself to manage this process (cited Smith, 1982, p. 57). Smith himself argued that "self-understanding links directly to learning how to learn when learners become sensitive to, and in control of the learning process, in other words, more aware of themselves as learners" (p. 57). Earlier Burman (1970) had put it much simpler: "We normally do best those things which we know how to do. I do not think learning is any exception" (p. 50).

Metacognitive strategies are usually divided into three areas. Planning strategies include eliciting purpose from self and the situation, organizing, and identifying the steps essential to the learning process (Yussen, 1985). Metacognitive monitoring keeps learners on the track as they learn. It reminds them of purpose, of resources, of previous experience, and of their strengths and weaknesses. Adjusting strategies help learners evaluate and regulate their learning activities. They include revision of learning plans and change of learning strategies in light of new knowledge or greater insight into the learning task or our own learning abilities.

Memory

In an 1978 address, Neisser (1982) boldly challenged previous research on memory stating that a 100 years of effort by psychologists

left very little to show because such researchers had avoided the study of memory related to topics interesting or meaningful to the learners. "If X is an interesting or socially significant aspect of memory, then psychologists have hardly ever studied X" (p. 4). Neisser went on to say, "What we want to know, I think, is how people use their own past experiences in meeting the present and the future. We would like to understand how this happens under natural conditions" (p. 12). This speech marks a significant movement to studies of memory as it is used in everyday life.

The study of memory in everyday life poses challenges for researchers. Real-life learning activities vary greatly from individual to individual and can be quite episodic in nature. However, they raise questions such as the following. If the use of imagery improves recall in laboratory situations, does it also work in everyday study situations (Schmeck, 1988)? Can the use of memory strategies such as imagery, grouping, and elaboration help in the learning of English as a second language (O'Malley & others, 1988)? In view of the long history of use of mnemonics in daily activities (Rachal, 1988), can the teaching of specific mnemonic devices support adult memory tasks (Zechmeister & Nyberg, 1982)?

For the most part adult educators seem content to reference traditional studies on memory skills in adults (Long, 1983). No presentations dealing specifically with memory have been presented during the past 5 years at the Adult Education Research Conference. However, several practice-oriented articles have been published in *Lifelong Learning* (Jones & Cooper, 1982; Ogle, 1986), and researchers are now beginning to probe for reasons affecting losses of memory functions rather than just accepting memory differences between young and old people (Ogle, 1986, p. 27).

Critical Thinking

Decision making, problem solving, logic, rational thinking, or as it is more likely to be called today, critical thinking is an aspect of education that has received intense study for

centuries. The renewed interest in critical thinking today is characterized by the content to which it is applied; i.e., the realities of life. In the current information society, learners are bombarded constantly by new information, by newspeak, and by visions. Much is equivocation, propaganda, or at least contradictory of prior information. This more complicated social environment poses new challenges for clear and creative thinking.

Brookfield's (1987) *Developing Critical Thinkers* has caught the attention of many in the field of adult education, perhaps because he has chapters applying his theory of critical thinking to the workplace, to television reporting, to political issues, and to personal relationships. However, the works of Argyris (1982), Meyers (1987), and Stice (1987) are also referenced frequently.

The four components of critical thinking in Brookfield's (1987) model are (a) identifying and challenging assumptions, (b) challenging the importance of context, (c) imagining and exploring alternatives, and (d) reflective skepticism. Such a model moves this approach to thinking from a totally intellectual activity to a more holistic endeavor. As Brookfield insists, "Critical thinking is not seen as a wholly rational, mechanical activity. Emotive aspects--feelings, emotional responses, intuitions, sensing--are central to critical thinking in adult life. In particular, the ability to imagine alternatives to one's current ways of thinking and living is one that often entails a deliberate break with rational modes of thought in order to prompt forward leaps in creativity" (p. 12).

Interest in critical theory introduced a sociological dimension to the concept of critical thinking. Jarvis (1987) offered a model for integrating the personal and social aspects of learning through a reflection on experience. He concluded "learning that results from and the meaning that is attributed to experience depends upon the inter-relationship between a personal stock of knowledge and the socio-cultural-temporal milieu within which the experience occurs" (pp. 171-172). Others such as McLaren (1990) and Shor (1980) are attempting to clarify how adults draw meaning from

their societal environment and in turn give critical thought to that context.

Metamotivation

Motivation is a nebulous concept defined and described from many differing philosophical, psychological, and educational stances. Because this project centered on human motivation as it related to real-life learning activities and because such adult learning is usually under the active control of the individual, an organismic or humanistic approach to motivation was adopted (Deci & Ryan, 1985). The word *metamotivation* was used to emphasize this learner control of motivational strategies. This was also done to distinguish the traditional juncture of motivation and participation in the field of adult education from the individual's metamotivational energizing and direction given to personal learning.

Tough (1971) directly addressed the motivational patterns found in self-initiated, self-planned learning projects of adults. His conclusion that pleasure, increased self-esteem, and the pleasing of others, in addition to the accomplishment of relevant goals, was useful in clarifying metamotivational strategies. Wlodkowski (1985) reinforced this by insisting that the strongest motivation for learning occurs when adults successfully learn what they value and want to learn in an enjoyable manner.

The ARCS model offered by Keller (1987) supplied a convenient set of categories for the analysis of metamotivational strategies. Attention, relevance, confidence, and satisfaction are the major components of this model. Attention, or the focusing of learning abilities on the material to be learned, appeared to be both essential and controllable. Acknowledging the relevance, enjoyment, or satisfaction produced by a learning activity also increased motivation to learn. The significant impact of confidence on learning had been well documented in previous research on learning style factors (Conti & Fellenz, 1988).

Resource Management

It appears obvious that the resources used

to gather information, to check the accuracy and relevance of knowledge, and to apply such data to action have a significant impact on learning. Yet research by Shirk (1990) suggests that adults may not be very adept at identifying and using the most relevant and reliable sources of information. He found that in self-initiated learning projects adults tended to use the most convenient resources such as their own books and magazines, family, friends, and neighbors. Although these same learners rated these sources as less effective, they indicated they would continue to rely on them. Other research, especially on older adults, indicates that many adults do not keep up with advances in technology. Habits regarding information seeking developed early in life may become permanent.

Resource management strategies were divided into the three categories of identification of appropriate learning resources, critical use of such sources, and the use of human resources in learning. Effective selection of resources depends on both awareness of appropriate sources and confidence in one's ability to use such sources. Critical use implies not only questioning the reliability or biased nature of a source but also recognizing the value of networking and improving resource management. The specification of human resources as a special category was an attempt to recognize the powerful impact of people and the social environment on learning. Suggested strategies include dialogue with people of different viewpoints and the use of discussion to study problems.

Validity

Validity is concerned with what a test actually measures (Kerlinger, 1973, p. 457). "Unless we have a fairly adequate answer to this question [of what does this test measure], any test will be useless in our attempts to deal wisely with human beings--adults or children" (Tyler & Walsh, 1979, p.28). While there are several types of validity, the three most important types recognized in educational research are construct, content, and criterion-related validity (Kerlinger, 1973, p. 457). These may be established in a variety of ways;

however, they should be compatible with the overall purpose of the test (Borg & Gall, 1983, p. 275; Van Dalen, 1979, pp. 135-136). Because establishing validity is essential to the credibility of any test and because it involves several steps, "the validation of a test is a long process rather than a single event" (Tyler & Walsh, 1979, p. 29). After the validity of the items of the instrument have been established, the instrument's overall reliability can be determined.

Construct Validity

Construct validity assesses the underlying theory of the test. It is the extent to which the test can be shown to measure hypothetical constructs which explain some aspect of human behavior (Borg & Gall, 1983, p.280; Van Dalen, 1979, p.137). It is the element that allows for the assigning of "meaning" to the test (Kerlinger, 1973, p. 461).

The process of establishing construct validity for SKILLS consisted of literature reviews and obtaining judgement on the constructs from a group of adult education and educational psychology professors. Exhaustive literature reviews were conducted on each of the five constructs and culled for information related to *adult* learning. Concepts from this review were then linked to scenarios of general areas of adult learning indicated by Shirk. In addition to Robert Sternberg assessing SKILLS, a group of adult educators and Wilbert McKeachie reviewed the constructs and accompanying strategies at a summer institute at the Center for Adult Learning Research. McKeachie reviewed the instrument separately and provided comments to the entire group. The adult educators then critiqued the instruments in small groups. The consensus of the group was that the instrument indeed addressed the five theoretical constructs of metacognition, metamotivation, memory, critical thinking, and resource management. It was also agreed that the scenarios represented a variety of real-life situations. However, several suggestions were made for modifying the response options and the scenario selections so that individuals could more easily tailor their personal respon-

ses to the situations that were most relevant to them and their real-life situations.

Content Validity

Content validity refers to the sampling adequacy of the content of the instrument (Kerlinger, 1973, p. 458). For SKILLS, content validity is concerned with the degree to which the items are representative of learning strategies used by adults in real-life situations. Content validity is determined through expert judgement because it cannot be expressed quantitatively (Gay, 1987, p. 130). The usual process of establishing content validity is to ask qualified judges to make a judgement concerning how well the items represent the content area (Gay, 1987, p. 130; Van Dalen, 1979, p. 136). Therefore, the jury selected to assess the initial constructs in the instrument was also asked to judge the degree to which all relevant real-life scenarios were included in the test and the degree to which the items reflected the theoretical constructs of the instrument. This judgement provided a measure of sampling validity.

A second form of content validity is item validity. This validity is concerned with whether the text items measure the overall, intended content area (Gay, 1987, p. 129). This was established through the logical process of assessing if adults responded to the items in meaningful patterns.

Item validity was established by field testing SKILLS with adult learners in various learning situations throughout the country in diverse locations such as adult basic education programs, graduate and undergraduate university courses, museums, health care facilities, extension education programs, and elderhostel programs. From sites such as these, 253 sample sets of responses were collected; each set consisted of six scenarios. The field-test group ranged in age from 17 to 73 with an average of slightly over 37-years of age. Nearly two-thirds of the respondents were female (62.8%). Although some had a very limited education, nearly three-fourths (73%) had completed a high-school level education. The group also represented a variety of residential areas: Large city over

250,000--29.8%; City of 100,000 to 250,000--5.3%; Town of 20,000 to 100,000--33.5%; Small town of 1,000 to 20,000--21.8%; and Rural area under 1,000--9.6%. Most (91.4%) spoke English as their primary language. Many occupations were represented in the group including educators, students, clerical workers, farmers, blue-collar workers, and homemakers. This diverse group of adults was from the West, Southwest, and Midwest.

Responses from the field-testing confirmed the assessment of the jury of adult educators. Although the items distinguished various learning strategies, respondents tended to respond that they would use a wide variety of learning strategies. Therefore, the answer sheet was modified for future use to force respondents to group the strategies into three categories according to their likelihood to use them. This will provide a ranking of the strategies based upon the individual's priorities. In addition, directions were changed so that the respondents will first read a brief overview of the various scenarios and then select the scenarios which were most relevant to them.

Reliability

SKILLS consists of 12 scenarios. While each scenario represents a different type of real-life situation, each of the scenarios is composed of 18 similar types of questions. Therefore, each scenario is designed as an equivalent form of the other scenarios. To establish the overall reliability for SKILLS, a coefficient of equivalence was calculated.

For the field-test version of SKILLS, the respondents were provided six scenarios. Each scenario contained 18 items. Respondents rated each item on the following scale: (a) "Yes, I would use this strategy"; (b) "I might possibly use it"; (c) "No, I would not use it". For the reliability check, the answers for 130 respondents were grouped into two categories. One category consisted of the scenarios dealing with local history, repairing a bike, and cholesterol level. The other contained the scenarios for writing a letter to the editor, job regulations, and care of a relative. Each category thus contained similar types of

scenarios. The correlation between forms was .71; this is an estimate of the reliability of the instrument if it consisted of 54 (3 scenarios x 18 items) items. Since the instrument actually consisted of the full 108 items, the equal length Spearman-Brown of .83 and the Guttman split-half of .83 are more accurate measures of the reliability of SKILLS.

A second correlation of equivalence was calculated for the other set of six scenarios. These two groupings consisted of (a) scenarios dealing with pet care, selecting leaders, and a vacation in Yellowstone Park and (b) scenarios dealing with auto insurance, dental care, and burial customs. The correlations for the 53 cases in this grouping were as follows: correlation between forms--.72, equal length Spearman-Brown--.84, and Guttman split-half--.84. Since all of these correlations are similar and are either at or above the commonly accepted standard of .7, SKILLS is a reliable instrument for assessing adult learning strategies in real-life situations.

Conclusion

A new instrument for assessing the use of learning strategies by adults in a variety of real-life situations has been developed. Although its construct and content validity have been established, further modifications are being made in the instrument's format and answering structure to increase the discriminating power of individual items, to strengthen its reliability, and to make it more relevant to respondents.

In reviewing SKILLS, McKeachie suggested that the final form of the instrument has several potential uses. It may be used as an individual learning tool for personal diagnosis to get people thinking about how they learn. Teachers can use it to think about what students are doing. In the research area, it can be used to uncover what people do concerning learning and may be useful in discovering if certain learning strategies are more effective than others in various situations and with various groups of adult learners.

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**Self-Knowledge Inventory of Lifelong Learning Strategies
(SKILLS)**

Directions and Answer Sheet for SKILLS

First: Read the six scenes dealing with real-life learning situations. Select four that make sense to you as situations that apply to you. Check these four on the following list:

- | | |
|---|--|
| <input type="checkbox"/> Auto Insurance | <input type="checkbox"/> Pet Care |
| <input type="checkbox"/> Burial Customs | <input type="checkbox"/> Job Regulations |
| <input type="checkbox"/> Local History | <input type="checkbox"/> Cholesterol Level |

Second: After you have selected four scenes, turn to the pages for these scenes that describe various learning strategies that you might use in these situations. For each scene, select the 6 learning strategies that you would Definitely Use, 6 that you might Possibly Use, and 6 that you would Not Likely Use. Enter the number for each of these 6 items in the proper box below.

Scene 1: _____

Definitely Use	Possibly Use	Not Likely Use

Scene 2: _____

Definitely Use	Possibly Use	Not Likely Use

Scene 3: _____

Definitely Use	Possibly Use	Not Likely Use

Scene 4: _____

Definitely Use	Possibly Use	Not Likely Use

Real-Life Learning Situations

AUTO INSURANCE

Your insurance company has better rates on auto insurance and better customer service than any company you have ever found. However, they believe that informed drivers are good drivers and have just started giving tests about driving laws and practices to everyone who wants to renew their insurance policy with the company. **How likely are you to use the following learning strategies in preparing for the test?**

BURIAL CUSTOMS

Funeral arrangements are being made for your best friend's father. You want to attend the funeral services. Because your friend is of a distinctively different culture, you are afraid you will not know how to act and thus will offend your friend's family. **How likely are you to use the following strategies in learning what you need to know about this friend's customs related to death and burial?**

LOCAL HISTORY

You have gotten a book on the history of the place where you live because you want to be able to tell friends and visitors interesting facts and stories about your town. **How likely are you to use the following strategies to learn everything you want to learn and remember about the history of your area?**

PET CARE

You have agreed to watch your friends' pet during their extended vacation. Your friends love their pet. The pet unexpectedly begins to act very strangely, and you do not know what to do. **How likely are you to use the following strategies in finding out how to care for the pet?**

JOB REGULATIONS

Some of your fellow workers start talking about the new regulations that will affect everybody with your job or position. You hear that copies of the regulations are in a big manual in the library and in the court house. **How likely are you to use the following learning strategies in finding out what the regulations are and what you need to do to keep your job?**

CHOLESTEROL LEVEL

You have recently visited the doctor and discovered that your cholesterol level is well above a healthy level. You have been advised to regulate this condition through diet. You are now left with the task of learning about proper nutrition and of changing your eating habits. Your next checkup is in six weeks. **How likely are you to use the following strategies in learning what you need to do in order to change your eating habits?**

AUTO INSURANCE

Your insurance company has better rates on auto insurance and better customer service than any company you have ever found. However, they believe that informed drivers are good drivers and have just started giving tests about driving laws and practices to everyone who wants to renew their insurance policy with the company. How likely are you to use the following learning strategies in preparing for the test?

1. Starting the learning by looking at materials to determine what is most important to study
2. Making up your mind to study the testing information because you want to renew your policy
3. Asking your local insurance agent whether the company has prepared material to help people study for the test
4. Marking those areas you think are important on a copy of the material you are studying
5. Thinking about the advantages and disadvantages of continuing with the insurance company
6. Reminding yourself periodically that you do not want to have to change your insurance company
7. Checking out the correct practice with an expert if you disagree with answers suggested in study material
8. Comparing the recommendations offered in the study material with your driving practices
9. Stopping to ask yourself questions while studying to see if you are remembering specific information
10. Making a concerted effort to study for the test because you are confident you will pass if you do study
11. Developing visual images in your mind, such as picturing a page in the manual, to help you remember
12. Finding another person taking the test who can quiz you over the material
13. Making a list of the things you have trouble remembering in order to review them often before the test
14. Imagining what might happen if you did or did not observe these regulations
15. Thinking of the personal pride you will have in passing the test and being able to tell others about it
16. Thinking about past experiences you have had taking exams so you can avoid difficulties on this test
17. Deciding to stop studying when you feel you are prepared for the exam
18. Thinking through the difference between things you learn that may help you pass the test and those that may actually improve your driving

BURIAL CUSTOMS

Funeral arrangements are being made for your best friend's father. You want to attend the funeral services. Because your friend is of a distinctively different culture, you are afraid you will not know how to act and thus will offend your friend's family. How likely are you to use the following strategies in learning what you need to know about this friend's customs related to death and burial?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Thinking about what might interfere with your attempts to learn about the customs of other people
2. Resolving to study about your friend's burial customs because you want to be of help
3. Calling those arranging the burial to see if they can offer some advice on appropriate cultural practices
4. Numbering the points you want to remember to see if you can repeat them every once in a while
5. Determining whether the funeral practices that you are familiar with are appropriate for your friend's culture
6. Recognizing that you will need to learn about these funeral customs because inappropriate practices will not provide help or comfort to your friend
7. Checking the behavior you decide is appropriate with a person knowledgeable about your friend's culture
8. Reflecting on your feelings that could interfere with your learning
9. Thinking about how your concern for your friend might influence your learning
10. Feeling confident that you can learn enough in the next few days to understand your friend's burial customs
11. Thinking through what you will do at the funeral so you will not fall into old habits
12. Asking other friends whether they have had any experience with burial customs in this or other cultures
13. Jotting down any unfamiliar names or customs so you can refer to them when paying your respects
14. Thinking of other ways you can pay your respects to your friend's family
15. Thinking of how you will feel by bringing comfort to your friend
16. Recalling other things you know about the customs of your friend's family to see if what you are learning fits in
17. Deciding to stop looking for differences in customs when you believe you know enough not to offend your friend's feelings
18. Testing out in your mind different practices to see if they are appropriate

LOCAL HISTORY

You have gotten a book on the history of the place where you live because you want to be able to tell friends and visitors interesting facts and stories about your town. **How likely are you to use the following strategies to learn everything you want to learn and remember about the history of your area?**

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Reviewing the table of contents to select the topics about your town to investigate
2. Setting aside a specific time when you are going to study local history
3. Checking the computerized catalogue at a library to see if there are other history books on the area
4. Practice telling the stories you have learned so you will remember the details
5. Looking for the complete story behind popular interpretations of local history
6. Stopping to think about how nice it will be to have such stories to tell friends and visitors
7. Checking to see if this book and author are trustworthy sources for information about your town
8. Imagining the types of things your friends will most likely want to hear about
9. Comparing your understanding of how history generally develops with your local history to determine what you need to learn
10. Stopping to reassure yourself that you can find plenty of interesting facts about your town
11. Painting a mental picture of the area as a setting for the story you want to remember
12. Discussing your ideas with people who have lived a long time in the area to see if their insights are different from what you are learning
13. Jotting down notes about the major points you want to remember
14. Asking yourself whether you have stories that would be of interest to visitors of varied ages and backgrounds
15. Thinking of the fun you will have finding out facts to tell your friends
16. Remembering what it might have been like to live in your area at the turn of the century to check if these stories have been glorified over time
17. Deciding when the information you have gathered is adequate for telling interesting stories
18. Accepting the author's account of many past events but continuing to look for information that may better explain interpretations given by the author

PET CARE

You have agreed to watch your friends' pet during their extended vacation. Your friends love their pet. The pet unexpectedly begins to act very strangely, and you do not know what to do. How likely are you to use the following strategies in finding out how to care for the pet?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Identifying what you need to know in this unexpected situation to care for the pet
2. Admitting to yourself that you need to begin immediately paying close attention to the pet's behavior
3. Beginning to form a list of resources you might use to check the pet's behavior
4. Repeating to yourself a list of things the pet does so you will be able to describe its behavior
5. Questioning whether there are things other than illness that could be causing the pet's strange behavior
6. Reminding yourself of how hard it would be to tell your friends that something happened to their pet
7. Checking with several other people who should be knowledgeable about this type of pet to see if all give similar advice
8. Watching the pet closely to see if you have missed any clues as to what is wrong with the pet
9. Checking to see if what you are finding out is helping you understand the pet's behavior
10. Reflecting on your experience with other pets to reassure yourself that you can take control of this matter
11. Watching for patterns in the pet's behavior so you will remember exactly how the pet is acting
12. Discussing the pet's behavior with someone who has a similar type of pet
13. Writing down changes in the pet's behavior so you will be able to describe them to others
14. Checking whether the pet's behavior could be due to your friend's absence
15. Thinking of the smiles on your friends' faces when they return to find their pet healthy and well
16. Recalling similar experiences with other pets to figure out what to look for
17. Deciding if you have enough information to make a decision to begin to care for the pet
18. Testing one of the suggestions you have gotten to see if it changes the pet's strange behavior

JOB REGULATIONS

Some of your fellow workers start talking about the new regulations that will affect everybody with your job or position. You hear that copies of the regulations are in a big manual in the library and in the court house. **How likely are you to use the following learning strategies in finding out what the regulations are and what you need to do to keep your job?**

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Thinking through what is important to know about these new regulations in order to decide what needs to be learned
2. Setting aside an evening to visit the library to review the new regulations
3. Finding out if there is an 800 number where you can get answers to specific questions you have
4. Marking on a copy of the regulations those areas that apply to your job
5. Checking to see if the new regulations will change the way you do your job
6. Reminding yourself of the difficulties you may avoid by learning the new regulations
7. Deciding to look through the regulations themselves.
8. Thinking through just how your performance on the job might have to change
9. Comparing your understanding of the new regulations with commonly accepted practices on the job
10. Reminding yourself that you have always been able to keep up with new regulations for a job
11. Remembering the new regulations by organizing them according to the daily routine you follow at work
12. Checking with your supervisor and fellow workers to find out if they have similar ideas about the new regulations
13. Placing your list of key points in a convenient place so they will remind you of what you have to do
14. Thinking of various ways that you can use the new regulations to improve your job situation
15. Thinking about how good you will feel when you figure out how to deal with the changes
16. Remembering past experiences at the court-house and library so you can avoid wasting time
17. Asking yourself if there are any parts of the job regulations that still confuse you
18. Beginning to test some of the new procedures on the job to see if they are going to work for you

CHOLESTEROL LEVEL

You have recently visited the doctor and discovered that your cholesterol level is well above a healthy level. You have been advised to regulate this condition through diet. You are now left with the task of learning about proper nutrition and of changing your eating habits. Your next checkup is in six weeks. **How likely are you to use the following strategies in learning what you need to do in order to change your eating habits?**

1. Making a plan that will help you learn enough about cholesterol in order to change unhealthy eating habits
2. Focussing on learning about good diet practices instead of worrying about the health hazards from excess cholesterol
3. Getting a book that has recipes for a low cholesterol diet and information on cholesterol from your local book store
4. Repeating to yourself the various types of ingredients to avoid so you will recognize them when reading labels
5. Checking for other ways of lowering your cholesterol besides changing your diet
6. Challenging yourself to learn enough about diets to reduce your cholesterol significantly by your next visit to the doctor
7. Setting up an appointment with a dietitian to help you make sense of all the information you have been receiving and hearing about
8. Thinking about what foods you are willing to give up in order to improve your health
9. Checking to see if what you are learning is actually helping you solve your cholesterol problems
10. Reminding yourself you have been able to learn new health practices before
11. Organizing high cholesterol foods into certain categories to help remember what foods to avoid
12. Calling several friends who have had high cholesterol to discuss what lifestyle changes worked best for them
13. Placing a cholesterol information sheet on your refrigerator as a reminder to change your eating habits
14. Studying various eating habits so you can set priorities on which changes will have the most impact on lowering your cholesterol
15. Thinking of how good it will feel to know that you can control your cholesterol level
16. Reflecting on previous experiences you have had with diets to know what techniques and attitudes work for you
17. Revising your learning method if you find you are becoming confused
18. Deciding to implement a specific low-cholesterol diet with the understanding that you will periodically check its effectiveness.

Directions and Answer Sheet for SKILLS

First: Read the six scenes dealing with real-life learning situations. Select four that make sense to you as situations that apply to you. Check these four on the following list:

- | | |
|---------------------------|------------------------|
| ___ Putting Bike Together | ___ Letter to Editor |
| ___ Dental Care | ___ National Park |
| ___ Recruiting Leaders | ___ Care of a Relative |

Second: After you have selected four scenes, turn to the pages for these scenes that describe various learning strategies that you might use in these situations. For each scene, select the 6 learning strategies that you would Definitely Use, 6 that you might Possibly Use, and 6 that you would Not Likely Use. Enter the number for each of these 6 items in the proper box below.

Scene 1: _____

Definitely Use	Possibly Use	Not Likely Use

Scene 2: _____

Definitely Use	Possibly Use	Not Likely Use

Scene 3: _____

Definitely Use	Possibly Use	Not Likely Use

Scene 4: _____

Definitely Use	Possibly Use	Not Likely Use

Real-Life Learning Situations

PUTTING A BIKE TOGETHER

You buy a bicycle from a discount store at a very reasonable price, but when you get it home and unpack it, you discover that it is not assembled. Directions are included. Nobody is willing to put it together for a price you can afford, and the store will not take it back. You decide to try to put the bike together yourself. **How likely are you to use the following strategies to learn how to put the bike together?**

DENTAL CARE

The dentist has told you that your gums are receding and that you are in danger of losing your teeth if you do not do a better job of taking care of your gums. You are not really happy about the program of care that the dentist suggested, but you realize that you need to do more to care for your gums. **How likely are you to use the following learning strategies in learning what you need to know in order to care for your gums?**

RECRUITING LEADERS

Your best friend has been asked to help recruit leaders for a group that is going to investigate the recreation and park services in your community. You have volunteered to help study what good leaders are like and to recruit good leaders. **How likely are you to use the following strategies in learning how to recruit leaders?**

LETTER TO THE EDITOR

A lot of people have been concerned about an issue affecting your neighborhood. Two of your neighbors want you to help them put together a letter to the editor of your local newspaper that would state your side of the case. You agree to help plan the letter, but you realize that you first must know more about this issue and about the attitude of others toward it. **How likely are you to use the following learning strategies in learning about the issue and in preparing an effective letter to the editor?**

NATIONAL PARK

You have decided to visit a national park such as Yellowstone or Grand Canyon for a summer vacation. Because of the size of the park, the crowds of people, and the park's numerous attractions, you know that you will have to learn some things about the park before you go. **How likely are you to use the following strategies to learn what you need to know in order to prepare for your trip?**

CARE FOR A RELATIVE

A close relative who has no one to rely on except you becomes seriously ill and can no longer be taken care of at home. You need to find out about the care facilities available, but you also realize you must try to calm the fears of your relative. **How likely are you to use the following strategies in learning how to find a good place for your relative to live and in learning how to help that person adjust to a new living style?**

PUTTING A BIKE TOGETHER

You buy a bicycle from a discount store at a very reasonable price, but when you get it home and unpack it, you discover that it is not assembled. Directions are included. Nobody is willing to put it together for a price you can afford, and the store will not take it back. You decide to try to put the bike together yourself. How likely are you to use the following strategies to learn how to put the bike together?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Reflecting on whether you learn best by trial and error, by following directions, or by having someone tell you how to do it
2. Resolving to learn how to put the bike together rather than worrying whether you can learn to do so
3. Looking at a bike that is already put together so you can have a model to examine as you work
4. Marking those steps or suggestions in the instructions that seem important yet easy to forget
5. Previewing the directions to see if you will need to follow them exactly as written
6. Reminding yourself of the money you are saving by putting the bike together
7. Phoning someone at the company that made the bike if you get stuck
8. Looking at all the parts of the bike to form a general idea of how they will fit together
9. Keeping the overall task in mind to prevent getting lost in details
10. Reassuring yourself occasionally that you can put the bike together
11. Remembering the tools you will need to get by making up a word or phrase based on their first letters
12. Talking with a friend who has better mechanical skills than you for encouragement in putting the bike together
13. Sorting out the parts that fit together so you will not leave out any part
14. Imagining various ways the bike could be put together
15. Thinking about the fun you will have when the bike is put together
16. Recalling similar experiences putting things together to remember what methods worked best for you
17. Taking a break if frustration interferes with figuring out how to put the bike together
18. Putting parts of the bike together to see if they work even if you are not sure you are doing it right

DENTAL CARE

The dentist has told you that your gums are receding and that you are in danger of losing your teeth if you do not do a better job of taking care of your gums. You are not really happy about the program of care that the dentist suggested, but you realize that you need to do more to care for your gums. How likely are you to use the following learning strategies in learning what you need to know in order to care for your gums?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Dividing the learning project into learning about general dental care and learning about your particular type of gum disease
2. Taking time to learn enough about teeth and dental health to help you make decisions
3. Using the Yellow Pages of the phone book to identify those offering dental services
4. Repeating to yourself often a list of good dental care practices so you will be able to remember them
5. Questioning the appropriateness of suggested dental practices
6. Imagining problems you could have with your teeth to help motivate you to learn
7. Checking to see if some profit-making agency has prepared the resource material you are using
8. Checking to see how the cost of dental care is influencing your decision making on gum care
9. Checking to see if what you are learning is actually helping you with your dental problem
10. Reassuring yourself that you can learn how to take better care of your gums
11. Connecting ideas on gum care with the people who gave you the information so you will remember the ideas
12. Seeking support from others who have had the same problem
13. Putting dental floss next to your toothbrush as a reminder of the benefits of flossing your teeth
14. Finding alternative dental practices and learning about them
15. Reminding yourself how good it will feel to know you can take care of your dental problems
16. Thinking over other things you know about dental care to see if you can remember useful ideas
17. Revising your learning plans if you are not finding an acceptable way of caring for your gums
18. Selecting one dental-care practice that you will try for a few weeks to see if it leads to any improvement

RECRUITING LEADERS

Your best friend has been asked to help recruit leaders for a group that is going to investigate the recreation and park services in your community. You have volunteered to help study what good leaders are like and to recruit good leaders. How likely are you to use the following strategies in learning how to recruit leaders?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Asking yourself what specifically needs to be done in your community before identifying the most appropriate leaders
2. Reminding yourself to focus on learning about leadership rather than worrying about being able to talk people into volunteering
3. Calling the Chamber of Commerce in your town to see if they have a community leadership group or program from which you could get ideas
4. Skimming through the information you have to highlight the key points you want to remember when recruiting leaders
5. Reviewing your decisions to see if friendship for certain people has influenced the suggestions you have made
6. Thinking about how your efforts will help your community have good recreation facilities
7. Examining closely the qualifications of those suggested as leaders by interviewing several people who have worked with them
8. Thinking about community leaders you have known to see if the advice you are getting from others is appropriate
9. Reflecting back to see if you are sticking with your learning plan
10. Feeling confident you will be able to convince those you identify as good leaders to volunteer their services
11. Making up a word or phrase to remind yourself of the things you want to ask potential leaders
12. Talking with community leaders to test out your opinions on the qualities of a good leader
13. Using a notebook or note cards to keep track of ideas that you want to remember
14. Thinking of many different ways of recruiting good leaders
15. Imagining how satisfying it will be to know you affected the recreational policies of your community
16. Recalling similar experiences you have had in selecting leaders so you can remember what worked best
17. Asking yourself if there are any traits of good leaders about which you are still confused
18. Thinking through what could be done if those who are selected turn out to be poor leaders

LETTER TO THE EDITOR

A lot of people have been concerned about an issue affecting your neighborhood. Two of your neighbors want you to help them put together a letter to the editor of your local newspaper that would state your side of the case. You agree to help plan the letter, but you realize that you first must know more about this issue and about the attitude of others toward it. **How likely are you to use the following learning strategies in learning about the issue and in preparing an effective letter to the editor?**

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Deciding what methods work best for you in analyzing issues
2. Focussing on learning about the issues rather than worrying if you can write an effective letter
3. Reading previous letters to the editor to clarify your position
4. Skimming through the information you have to highlight the key points that you want to remember for upcoming discussions
5. Checking the arguments of those opposing your position to pick out inconsistencies in your ideas
6. Thinking of how the letter could improve the cooperative spirit within your neighborhood
7. Checking with someone outside the neighborhood who knows a lot about such issues
8. Reviewing previous letters to the editor to analyze the points that made them effective
9. Reflecting back to see if you are sticking with your plan of learning
10. Confirming your belief that a statement of your position in a letter to the editor will bring about positive change on the issue
11. Forming a mental outline of the points you hear in discussions that you want to remember until you get a chance to write them down
12. Taking time to test your ideas out on people whose opinions differ from yours
13. Keeping a list of the points you want to get more information about before you write the letter
14. Thinking about numerous possible solutions that could be used to address this issue
15. Thinking of the satisfaction you and your neighbors will feel in seeing your ideas printed in the paper
16. Recalling similar experiences people have had in writing letters to the editor
17. Getting some feedback on your ideas before you sent the letter to the newspaper
18. Thinking about what will happen if the letter is published by the editor

NATIONAL PARK

You have decided to visit a national park such as Yellowstone or Grand Canyon for a summer vacation. Because of the size of the park, the crowds of people, and the park's numerous attractions, you know that you will have to learn some things about the park before you go. How likely are you to use the following strategies to learn what you need to know in order to prepare for your trip?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Taking a few minutes to think about how you best locate the materials you will need to plan this trip
2. Setting aside a specific amount of time to collect and review resource materials about the park
3. Gathering some resources such as books, maps, and names of people who have been there
4. Repeating to yourself several times the names of places in the park that others mention to you as being particularly interesting so you will become familiar with these names
5. Thinking about where you want to stay in order to check if there are accommodations available
6. Thinking about how nice it will be to tell stories about your trip when you return home
7. Analyzing carefully the materials about the park that you have collected by talking to others who have been there
8. Thinking through the kinds of things that could interfere with your enjoyment of the trip
9. Checking periodically to see if there are other things you would like to learn about the park
10. Reminding yourself of other trips you have planned successfully
11. Forming a mental image of what would be nice to have in the car as you travel
12. Identifying some people who have been to the park to see if you can learn anything from their experience
13. Starting a list of all the important questions you have about the trip so you will remember to deal with them
14. Thinking about various things to do each day of your trip in case crowds or conditions make you change plans
15. Thinking of the fun you are going to have learning new things about the park
16. Recalling similar experiences you have had in the out-of-doors to decide what extra supplies you will take along
17. Evaluating how well you have done in learning about the park
18. Drawing up a tentative schedule of events for your trip while realizing that changes may need to be made once you get there

CARE FOR A RELATIVE

A close relative who has no one to rely on except you becomes seriously ill and can no longer be taken care of at home. You need to find out about the care facilities available, but you also realize you must try to calm the fears of your relative. How likely are you to use the following strategies in learning how to find a good place for your relative to live and in learning how to help that person adjust to a new living style?

Directions: Select the 6 strategies from the following list of 18 that you feel you would definitely use and place the number of these strategies on the lines in the *Definitely Use* box of the answer sheet. Select 6 other strategies that you might possibly use and place the number of these strategies in the *Possibly Use* box of the answer sheet. Select 6 other strategies that you would least likely use and place the number of these strategies on the lines in the *Not Likely Use* box of the answer sheet.

1. Recalling the kinds of things your relative enjoys so that you can be sure to look for those things at the various facilities
2. Organizing your time for finding resources, learning about alternatives, and analyzing the information
3. Calling the county courthouse to find out if there are any local agencies that provide help in locating services that help people adjust to living in a health-care facility
4. Repeating every once in a while the points you want to remember about each place
5. Finding out whether your idea of a good care facility matches that of the relative
6. Deciding that it is worth the time it will take to visit all the facilities
7. Asking yourself if the information you received from each of the care facilities is honest or if it is slanted just to draw customers
8. Thinking through the activities that your relative enjoys to make sure the facility can provide those activities
9. Thinking about how your concern for your relative might influence your learning
10. Feeling confident that you can find the best facility for your relative
11. Attaching the points you want to remember to a mental image of each care facility
12. Checking out your ideas of what a good health care facility is with people who have knowledge about these places
13. Using a list of important things to check at each care facility to gather complete information
14. Listing the various alternatives including the advantages of each facility
15. Reminding yourself of how satisfied you will feel because you helped your relative find good care
16. Recalling similar situations regarding care for the seriously ill that you have heard about from friends, professional contacts, the paper, or TV
17. Revising your plan for learning if you cannot find ways to calm your relative's fears
18. Selecting the most appropriate facility for your relative realizing you may later need to change your decision

Score Sheet for SKILLS

Directions: To compute your score on SKILLS, enter the values for each scene separately on the proper blank lines below. Enter 3 points for each item in the Definitely Use box, 2 for each item in the Possibly Use box, and 1 for each item in the Definitely Not Likely Use box. To find your score for each of the 18 strategies, add the scores across the page and enter this sum in the column marked Total. To find your general scores, transfer these totals to the boxed area.

Scene	1	2	3	4	Total				
1.	___	+	___	+	___	+	___	=	___
2.	___	+	___	+	___	+	___	=	___
3.	___	+	___	+	___	+	___	=	___
4.	___	+	___	+	___	+	___	=	___
5.	___	+	___	+	___	+	___	=	___
6.	___	+	___	+	___	+	___	=	___
7.	___	+	___	+	___	+	___	=	___
8.	___	+	___	+	___	+	___	=	___
9.	___	+	___	+	___	+	___	=	___
10.	___	+	___	+	___	+	___	=	___
11.	___	+	___	+	___	+	___	=	___
12.	___	+	___	+	___	+	___	=	___
13.	___	+	___	+	___	+	___	=	___
14.	___	+	___	+	___	+	___	=	___
15.	___	+	___	+	___	+	___	=	___
16.	___	+	___	+	___	+	___	=	___
17.	___	+	___	+	___	+	___	=	___
18.	___	+	___	+	___	+	___	=	___

Metacognition	
Planning (1)	___
Monitoring (9)	___
Adjusting (17)	___
Total	___
Metamotivation	
Attention (2)	___
Reward/Enjoy (6)	___
Confidence (10)	___
Total	___
Memory	
Organization (11)	___
External (13)	___
Application (16)	___
Total	___
Critical Thinking	
Assumptions (5)	___
Alternatives (14)	___
Cond. Accept (18)	___
Total	___
Resource Management	
Identify (3)	___
Critical Use (7)	___
Human (12)	___
Total	___