PERFORMANCE LEVEL 1

Take Responsibility for Learning

How adults at Level 1 **Take Responsibility for Learning:**
- Establish learning goals that are based on an understanding of one's own current and future learning needs
- Identify own strengths and weaknesses as a learner and seek out opportunities for learning that help build self-concept as a learner
- Become familiar with a range of learning strategies to acquire or retain knowledge
- Identify and use strategies appropriate to goals, task, context, and the resources available for learning
- Monitor progress toward goals and modify strategies or other features of the learning situation as necessary to achieve goals
- Test out new learning in real-life applications

Level 1 Indicators

Use Key Knowledge, Skills, and Strategies
Adults performing at Level 1 can:
- Identify current and future learning needs, and communicate a specific and attainable learning goal based on those needs
- Recall prior experiences to identify a few, but general and not comprehensive, learning strengths and weaknesses; identify a gap in knowledge related to the learning goal; and identify a basic learning opportunity appropriate to the strengths and goal
- Select and use a few simple learning strategies (such as simple recall of limited prior knowledge and simple recall/repetition of limited new information through creating and remembering a simple list in correct serial order; simple questioning; copying from models; and asking for help) and basic sources of information (such as suggestions or models of others) that are appropriate to the task context/conditions, individual goal, preferred learning style, and available resources in order to acquire and retain knowledge; and apply new learning to address the learning goal
- Monitor progress toward achieving learning goal with very basic strategies such as following written or oral instructions, and adjust learning strategies or other features of the learning context as necessary

Show Fluency, Independence, and Ability to Perform in a Range of Settings
Adults performing at Level 1 can Take Responsibility for Learning slowly (or with inappropriate speed), hesitantly, sporadically and with great difficulty, and supported by significant guidance, assistance and prompting, to accomplish very simple, highly structured and externally scaffolded tasks with a few well-defined steps that require minimal prediction or judgment, in a single comfortable and familiar setting

Level 1 Examples of Proficient Performance

Adults performing at Level 1 can Take Responsibility for Learning to accomplish a variety of goals, such as:
- Learn some math-related English words in order to better understand and solve simple word problems
- Learn about and use the process for correctly completing simple timesheets at work

PERFORMANCE LEVEL 2

Take Responsibility for Learning

How adults at Level 2 **Take Responsibility for Learning**:
- Establish learning goals that are based on an understanding of one's own current and future learning needs
- Identify own strengths and weaknesses as a learner and seek out opportunities for learning that help build self-concept as a learner
- Become familiar with a range of learning strategies to acquire or retain knowledge
- Identify and use strategies appropriate to goals, task, context, and the resources available for learning
- Monitor progress toward goals and modify strategies or other features of the learning situation as necessary to achieve goals
- Test out new learning in real-life applications

Level 2 Indicators

Use Key Knowledge, Skills, and Strategies
Adults performing at Level 2 can:
- Identify current and future learning needs, and communicate a specific and attainable learning goal based on those needs
- Recall prior experiences to identify some specific learning strengths and weaknesses; identify a gap in knowledge related to the learning goal; and identify more than one learning opportunity appropriate to the strengths and goal
- Select and use a range of simple learning strategies (such as some application of prior knowledge, and recall and elaboration of some new information through reading and restating simple text; underlining or taking literal notes; brief active listening; brief memorization and practice; using simple mental imagery to describe an event; questioning; trial-and-error; and dialogue with others) and basic sources of information (such as simply-written text, pictures, and brief oral communications) that are appropriate to the task context/conditions, individual goal, preferred learning style, and available resources in order to acquire and retain knowledge; and organize and apply new learning to address the learning goal
- Monitor progress toward achieving learning goal with some simple strategies such as self-questioning, and adjust learning strategies or other features of the learning context as necessary

Show Fluency, Independence, and Ability to Perform in a Range of Settings
Adults performing at Level 2 can Take Responsibility for Learning slowly and with significant effort but thoroughly with increasing confidence, and supported by some guidance**,** assistance and prompting, to accomplish structured and externally scaffolded tasks with multiple well-defined steps that require some prediction or judgment, in more than one comfortable and familiar setting

Level 2 Examples of Proficient Performance
Adults performing at Level 2 can Take Responsibility for Learning to accomplish a variety of goals, such as:
- Learn what you need to know in order to decide what groceries to buy on a budget of $100
- Learn what you need to know in order to teach a basic math concept to your child
- Learn about and use an email account in order to stay in touch with people in other states or countries
- Learn about resources available in order identify a dependable and reasonably-priced option for a home repair

PERFORMANCE LEVEL 3
Take Responsibility for Learning

How adults at Level 3 **Take Responsibility for Learning**:

- Establish learning goals that are based on an understanding of one's own current and future learning needs
- Identify own strengths and weaknesses as a learner and seek out opportunities for learning that help build self-concept as a learner
- Become familiar with a range of learning strategies to acquire or retain knowledge
- Identify and use strategies appropriate to goals, task, context, and the resources available for learning
- Monitor progress toward goals and modify strategies or other features of the learning situation as necessary to achieve goals
- Test out new learning in real-life applications

Level 3 Indicators

Use Key Knowledge, Skills, and Strategies
Adults performing at Level 3 can:

- Identify current and future learning needs, and communicate a specific and attainable learning goal based on those needs
- Analyze prior experiences and current practices in order to identify a comprehensive list of specific learning strengths and weaknesses; identify a gap in knowledge related to the learning goal; and identify multiple learning opportunities appropriate to the strengths and goal
- Select and use a range of simple and some more sophisticated learning strategies (such as analysis and application of prior knowledge, and elaboration of new information through reading, summarizing, paraphrasing, skimming and identifying key points in informational text; active listening; extended memorization and practice; locating and exploring community resources; engaging others in cooperative work; predicting and "sensing" – reading, hearing, visualizing -- ideas and reactions of others; and interviewing "experts" and asking them for further information) and sources of information (such as longer informational texts, graphics, and longer oral communications) that are appropriate to the task context/conditions, individual goal, preferred learning style, and available resources in order to acquire and retain knowledge; and organize and apply new learning to address the learning goal
- Monitor progress toward achieving learning goal with a range of strategies including self-testing and interim summary of information and activities, and adjust learning strategies or other features of the learning context as necessary

Show Fluency, Independence, and Ability to Perform in a Range of Settings
Adults performing at Level 3 can Take Responsibility for Learning at an appropriate speed with some effort, but with confidence, and supported by only initial or occasional guidance and assistance, to accomplish fairly complex but structured tasks with multiple steps that require significant prediction or judgment, in some familiar and some novel settings

Level 3 Examples of Proficient Performance

Adults performing at Level 3 can Take Responsibility for Learning to accomplish a variety of goals, such as:

- Learn about parent concerns, meeting protocols and topics being addressed in order to effectively represent parents at a local school board meeting
- Learn about the criteria employers use when deciding whom to hire, and use the information to plan for job interviews
- Learn about the diverse backgrounds of people in your community in order to create a display for a local Cultural Heritage Fair
- Learn about city services that you can access in support of your special-needs child.

PERFORMANCE LEVEL 4

Take Responsibility for Learning

How adults at Level 4 **Take Responsibility for Learning***:*
- Establish learning goals that are based on an understanding of one's own current and future learning needs
- Identify own strengths and weaknesses as a learner and seek out opportunities for learning that help build self-concept as a learner
- Become familiar with a range of learning strategies to acquire or retain knowledge
- Identify and use strategies appropriate to goals, task, context, and the resources available for learning
- Monitor progress toward goals and modify strategies or other features of the learning situation as necessary to achieve goals
- Test out new learning in real-life applications

Level 4 Indicators

Use Key Knowledge, Skills, and Strategies
Adults performing at Level 4 can:
- Identify current and future learning needs, and communicate a specific and attainable learning goal based on those needs
- Evaluate and integrate information from prior experiences and current practices in order to summarize key learning strengths and weaknesses; identify a gap in knowledge related to the learning goal; and identify a range of learning opportunities appropriate to the strengths and goal
- Select and use a broad range of sophisticated learning strategies (such as evaluation and selective integration of prior knowledge, and elaboration and organization of new information through extensive reading, outlining and evaluation of informational text; sustained active listening; asking probing questions; creating analogies or detailed schema for categorizing information; creating conceptual maps; evaluating usefulness of community resources; choosing to engage in individual or cooperative work depending on context and need; and "intuitively understanding" ideas and reactions of others) and sources of information (such as long, complex texts, complex graphics including charts, graphs and tables, and long oral communications) that are appropriate to the task context/conditions, individual goal, preferred learning style, and available resources in order to acquire and retain knowledge; and organize, synthesize and apply new learning to address the learning goal
- Monitor progress toward achieving learning goal with a wide range of strategies including testing to detect inconsistencies in information and understanding, and adjust learning strategies or other features of the learning context as necessary

Show Fluency, Independence, and Ability to Perform in a Range of Settings
Adults performing at Level 4 can Take Responsibility for Learning smoothly, effortlessly, and confidently, and supported by little or no guidance or assistance (taking initiative and sometimes assisting others), to accomplish complex, minimally structured or novel tasks with multiple steps that require a high degree of prediction or judgment, in a range of familiar and novel settings

Level 4 Examples of Proficient Performance

Adults performing at Level 4 can Take Responsibility for Learning to accomplish a variety of goals, such as:
- Learn what you need to know in order to develop program policies and specifications for a new community education center
- Learn about a range of policies and procedures at multiple workplaces in order to revise your employer's personnel manual.

How to Read the EFF Performance Continuum for
Take Responsibility for Learning

Each performance level of the EFF Performance Continuum for each EFF Standard is divided into four sections:

Section 1: The Definition of the Standard

Section 1 is the definition of the Standard. The definition of the standard in the components of performance is a useful tool for communicating to adult learners and their teachers the essential features of the construct for each standard. By "unmasking the construct" in this way (making it clear how the skills of taking responsibility for learning are defined), adult learners are better able to articulate their own learning goals for improving proficiency and teachers are better able to focus learning and instructional activities that build toward the goal of increasing ability to Take Responsibility for Learning to accomplish everyday activities.

The definition of the EFF Standard Take Responsibility for Learning is repeated in the same form at each level of the continuum. This repetition serves as a reminder that the integrated skill process defined by the components of performance for this standard is constant across all levels, from novice to expert levels of performance. Thus, the standard does not change from level to level. It remains a consistent focal point for learning and instruction. What changes from level to level is the growth and complexity of the underlying knowledge base and the resulting increases in fluency and independence in using the standard to accomplish an increasing range and variety of tasks. These changes are reflected in the descriptions of key knowledge, skills, and strategies at each level (Section 2); descriptions of fluent and independent performance in a range of settings at each level (Section 3); and the examples of real-world activities that can be accomplished at each level (Section 4).

Section 2: Use Key Knowledge, Skills, and Strategies

Section 2 of the performance continuum for Take Responsibility for Learning contains descriptions of some of the key knowledge, skills, and strategies that form the basis for proficient performance on the standard at each level. This listing of key knowledge, skills, and strategies is specific to each level and is the foundation for designing assessments to measure performance at that level. Beyond serving as guide for assessment development, the key knowledge, skills, and strategies described at each performance level can also be used to identify instructional objectives or can be included in the criteria used for placement of learners in instructional levels.

Goal orientation and Positive Motivation to Learn

The first bullet under Key Knowledge, Skills and Strategies defining competent performance of the EFF standard Take Responsibility for Learning addresses the ability to articulate a specific learning goal that logically follows accurate self-assessment of one's current and future learning needs. Being explicit about this important aspect of learning to learn, early on in the description of the learning to learn process at each level, signals that goal orientation is a key indicator of success in this approach to thinking and learning. Not only does a clear and attainable goal guide the

thoughtful selection and effective use of thinking and learning strategies; the fact that one has identified a learning goal meaningful and important to oneself makes it more likely that one will be, and remain, highly motivated to learn in order to achieve the goal. Because positive goal orientation is so important to the quality and outcomes of any learning to learn activity, the identification and communication of specific learning goals is treated as a constant at every level of the Performance Continuum for the standard

Drawing on prior knowledge and experience

The second bullet under Key Knowledge, Skills and Strategies on the EFF Performance Continuum for Take Responsibility for Learning deals with integration of prior knowledge into a purposeful learning to learn process. "Prior knowledge" in this category refers to
- How one has learned (something/anything) effectively in the past;
- What one already knows about the content area that is to be the focus of new learning; and
- What one knows about potential opportunities for new learning that best match one's goal and learning preferences.

In the first case, development along the continuum is marked by increasing experience as a learner, and therefore, a growing base of information upon which to base an increasingly coherent sense of one's strengths and weaknesses when trying to learn something new. It is here that an understanding of the role of multiple intelligences and identification of an individual's preferred learning styles may be particularly helpful as one uses that information to plan new learning activities. Novices tend to identify a few general strengths and weaknesses ("I like to read but I can't write very well"); movement toward expertise involves identifying a greater number of more specific preferences and challenges, the organization of which becomes an increasingly useful tool for learning to learn (" I need a couple quiet hours to read and think about this report; then before I write a summary and evaluation I'll want to talk to you about it.").

The second case in which this category addresses prior knowledge is in the realm of subject-area information related to one's learning needs and particular goal, and the questions are asked in the same way at each level of the continuum: what do I already know? And what more/what else do I need to learn? Then, based on the answer to those questions, one draws on prior knowledge in the third case – to decide where and under what conditions one will most likely learn what is needed to reach the learning goal. Again, at the novice level one has limited experience to draw on, and therefore is able to identify only few and basic opportunities to learn; nevertheless these will sufficiently call on one's learning strengths to make possible achievement of limited learning goals. And again, as learning experience and expertise grow, performance is characterized by the ability to choose from among a wide range of quality learning opportunities in pursuit of complex learning goals.

Strategic Knowledge for Learning

The selection and use of cognitive processes and strategies in aid of learning to learn, in conjunction with identification of appropriate information sources, is the focus of the third category of Key Knowledge, Skills and Strategies on each performance level of Take Responsibility for Learning. The description of competent performance in this bullet at each level further clarifies that application of strategic knowledge for thinking and learning is directly related to the demands of a

specific learning goal, to the particular context in which one is pursuing that goal, and to the individual learning strengths and preferences that one has identified.

At level 1 on the continuum, performance in the selection and use of cognitive strategies is consistent with early, basic knowledge acquisition – a start in building a knowledge base. The primary cognitive process featured here is simple recall of basic information, and the sources of that information will most likely be models that can be copied or suggestions/instructions that can be readily followed. The kinds of strategies used to enable simple recall are mostly "rehearsal" strategies such as rote memorization and simple repetition. Nevertheless, even in this early stage, cognitive processing of incoming information is occurring; in other words, even in a rudimentary form that information is organized, perhaps in correct serial order or in a highly structured (mental or physical) template, rather than taken in in unrelated bits.

At level 2, strategic knowledge supporting one's ability to Take Responsibility for Learning is starting to focus on the transformation of literal information inputs into a personally meaningful form for the learner. Knowledge is being acquired from slightly more complex sources – simple texts, graphics, and oral communications, for instance – and a learner's cognitive processes include introduction of some sort of personally useful structure or symbolic representation in an early stage of "elaboration" of recalled information. Strategies here might include underlining portions of simple texts, taking literal notes from brief oral communication, constructing sentences in order to relate one discrete fact to another, or using mental images rather than only literal memory to describe an event. There is also some movement toward finding relationships between prior knowledge and new information.

A striking difference between the cognitive processes of recall and elaboration, even in its early form at level 2, is the move toward a more active role for a learner – an ever more explicit engagement between the learner and the new information to be processed which is a marker of growing expertise. By level 3 on the performance continuum, learning to learn is characterized by full and active use of elaboration strategies designed for
- fairly complex knowledge acquisition from more extended and complex information sources;
- integration of prior knowledge, experience, attitudes and beliefs; and
- processing of the resulting input so that one can make meaning of it.

Here, such strategies might include paraphrasing information, and identifying and summarizing key points.

Level 4 of this third bullet under Key Knowledge, Skills and Strategies needed to Take Responsibility for Learning features cognitive processes that impose new organization on information, according to existing or newly created schemas, so that it is easier to understand for the individual learner. The learner takes a highly active role in interaction with multiple complex information sources and transforms them. Here a learner integrates prior knowledge with new information and defines criteria by which to organize the results; strategies to accomplish this might include complex categorization; extended outlining; or creating conceptual maps or extended analogies as a way to understand the relationships among new ideas.

Monitoring Progress Toward Learning Goal Achievement

Equipped for the Future
Take Responsibility for Learning Performance Continuum

The final bullet under Knowledge, Skills and Strategies used at each level of Take Responsibility for Learning addresses the metacognitive and adaptive aspects of learning to learn – the awareness of one's own processes and the ability to control them in the context of real-life learning needs. Some aspects of the self-monitoring activity described here remain constant across all levels of the Performance Continuum. At each level, the learner enacts the selected learning strategies in the decided-upon combinations – in other words, pursues the learning goal. And at each level the learner makes changes in that approach, or not, depending on whether the approach produces the desired outcome – in other words, whether or not the learning goal is then perceived to be achieved. What changes from level to level, and what introduces the critical metacognitive aspects of thinking and learning here, is the ability to monitor what happens while, and after, one implements the selected cognitive strategies. Development from novice toward expertise in this area is marked by the number and sophistication of ways that a learner can secure useful feedback about how well the strategies are working toward achievement of the learning goal. At level 1 monitoring activities are intentional but few and simple, focusing primarily on use of externally defined criteria. However, at levels 2 and 3 such monitoring strategies as self-questioning, and later, learning summaries and self-testing signal increasing autonomy and complexity in the learner's self-control activities. And by Level 4 the number and range of these activities have expanded to include many sophisticated, often technically complex procedures that are consistent with a deep knowledge base, such as identification of inconsistencies in multiple sources of information or in one's understanding of multiple inputs.

Section 3: Show Fluency, Independence and Ability to Perform in a Range of Settings

Section 3 is the description of fluency, independence and ability to perform in a range of settings expected for proficient performance on the standard at each level. Like the description of key knowledge, skills and strategies in Section 2, the descriptions in Section 3 are specific to each level and are intended to serve as a basis for guiding assessment, learning and instruction that is appropriate to that level.

With regard to Take Responsibility for Learning, key features of this section are descriptions of the level of effort required to accomplish a thinking and learning task (relative difficulty or ease with which one applies learning strategies to achieve a learning goal), the level of confidence with which one pursues the learning goal, and the amount and kinds of external support needed to plan and implement a learning process. At the novice level, individual performance is noticeably effortful; the learner is hesitant and depends on direction and prompting from others within highly structured activities to be able to define an attainable learning goal, select appropriate learning strategies, and monitor outcomes. In the movement toward expertise, individual performance depends less and less on external assistance or structure; the learner's confidence increases, as evidenced in growing ability to engage in, and eventually initiate the learning process, with increasing ease and comfort. In a group setting this developing expertise may also be enacted in the individual's willingness and ability to lead others through the thinking and learning process.

Section 4: Examples of Proficient Performance

Section 4 of the performance level descriptions provides a short list of examples of the purposeful applications of the standard (activities) that can be accomplished by an adult who is proficient at each level. This list of examples is illustrative and not exhaustive. Like Sections 2 and 3, the descriptions of activities in Section 4 are specific to each performance level. These examples of

things that adults can accomplish in the real world at each level of performance on the continuum are useful to adult learners and to their teachers as ways of making concrete the purpose and need for attaining increasing proficiency in performance on the standard. By making it clear what can be accomplished at each level, the descriptions of activities in Section 3 also provide motivation for higher levels of learning. The listing of real-world accomplishments also provides guidance for selecting and designing the content for instructional materials and assessments.

Learning to learn tasks here are defined with reference to two related features:
- The relative complexity of the learning goal, and
- The number and relative complexity of the cognitive and metacognitive strategies brought to bear on the learning goal.

At level 1, learners are expected to Take Responsibility for Learning in the context of tasks where the learning goal is very simple and very easily defined. Once the specific learning goal is identified and already-existing knowledge and strengths are assessed in tasks at this level (for instance, "I've heard about timesheets but I've never seen one or filled one out; now I need to learn how to fill out a timesheet at work"), learners are required to select and try out a few very simple learning strategies to achieve the goal (for instance, "I'll ask my co-worker to do it for me for a couple days, and watch while she does it; after I watch a couple times I can try it myself"). In level 2 tasks the learning goals are still fairly simple and defined ("I usually have about $100 to spend each time I go to the grocery store. I need to learn how to make the best decisions about what to buy with what I have"), but require learners to select and try out a combination of strategies ("ask folks what they would like to eat and write down some notes so I'll remember; circle some good buys in the advertisements from the local grocery stores; check out the coupons I have or can get on the internet and estimate how much things will cost; decide where to shop and make a list".)

By level 3 the learning tasks are fairly complex though still pretty well-defined ("I've never attended a school board meeting before and now my classmates have asked me to represent them at the next meeting. I know about the issues that I care about when it comes to my child's education, but I need to learn a lot more about my classmates' concerns and how a board meeting works if I am going to represent my classmates well".) To achieve such goals a learner will need to pursue a variety of learning opportunities and utilize a good store of basic and more sophisticated learning strategies (" write a summary of my own concerns; interview my classmates with a tape-recorder and keep listening to the tape until I can put their concerns in my own words too; ask someone who has attended a board meeting before about what to expect; call and ask for a copy of the meeting agenda, and highlight the parts I care about.").

Finally, level 4 tasks are characterized by complex and often novel learning goals ("So many folks in our neighborhood are unemployed or looking for better jobs, and we know that we need more educational opportunities to get decent jobs. A group of us want to start a community learning center, and the local church has offered us some space. We know in general what the needs are and what kinds of educational programs we want to offer, but we need to learn so much more about how to get a program up and running"). They require learners to find multiple, complex and sometimes innovative learning opportunities and to have a wide range of learning strategies available for use in order to pursue the learning goal ("outline policy handbooks from other similar programs; categorize key program activities, responsibilities and personnel, summarize notes from interviews with community leaders and from a local presentation on nonprofit management; create an organizational chart; etc.).

Background to the EFF *Take Responsibility for Learning* Performance Continuum

The EFF standard *Take Responsibility for Learning,* one of the four interrelated and sometimes overlapping EFF standards that are categorized as "Lifelong Learning Skills", highlights one domain of adult knowledge and skills that is critical for adults to be able to draw from in order to carry out their responsibilities in their roles as family members, workers, and citizens. Defined generally as "learning and knowing how to learn", and further, intentionally using one's ability to "organize social and technological resources to transform what is unfamiliar into the mastered" (Berryman, 1989), taking responsibility for learning is broadly acknowledged as important across many domains of content knowledge and activity. Knowing how to learn new information and procedures quickly and efficiently is often cited by employers and practitioners in workforce development as a key requirement for successful and productive employees – especially as today's workplace tries to keep pace with a rapidly changing and increasingly global economy. Businesses have been investing considerable resources into training for their executives that is meant to enhance the quality and speed of their thinking and the number and variety of new ideas that they are able to generate. And "keeping pace with change" is not a concern unique to the workplace; the sheer quantity of new information that has become more readily available to us, the rapid technological developments in recent years, and the inevitable resulting changes in the systems and institutions that affect our families and communities, all point to the need to know how to learn new things quickly and efficiently. "Lifelong learning" in all of our key adult roles has become a necessity rather than an avocation.

A great deal of attention has been paid recently to research into how people learn to think and to learn by those interested in applying the findings of this research in the field of PreK-12 Education. Specifically, efforts have been made to discover whether it is possible for researchers to identify, for teachers to teach, and for children to learn, a set of general learning skills or "study strategies" that will improve their performance across disciplines. Further research of interest focuses on individual learning "styles" or "preferences", and the extent to which 1) teachers can be trained to successfully shape their instruction, and 2) schools can appropriately restructure the learning environment, in order to best serve students' diverse learning styles. Weinstein and Meyer (1991) extend this interest to the field of assessment, arguing that we need to be measuring the processes of learning as well as the products of learning. Particularly, attention needs to be paid to measurement of synthetic thinking; application of learning; acquisition of learning processes; use of learning strategies; and metacognition. When teachers have information from this kind of assessment, they will be able to use it to improve their instruction, leading to improved student planning and self-control.

Empirical work in these areas has focused almost exclusively on children; we will discuss some of it in greater detail below. There have, though, been some recent efforts in the field of Adult Basic, Literacy and ESOL Education to help adult learners to discover their most comfortable and effective learning styles in hopes that this knowledge will lead to higher levels of learning. And in the classroom, Literacy/ABE/ESOL practitioners will sometimes (usually in conjunction with imminent high-stakes testing) set aside time and resources to conduct instruction in "study skills". Nevertheless, explicit treatment of the selection, use and monitoring of studying and learning strategies is rarely found in the traditional, academics-focused adult basic skills curriculum; nor is such curriculum often adapted to meet the needs of learners who exhibit diverse learning styles

within one group or class. So teaching and assessing the ability to take responsibility for learning in adult basic/literacy/ESOL education, and doing so as necessary in complex, real-world adult contexts, across several domains of adult activity, is a fairly new endeavor. That has made our job -- to develop a Performance Continuum for the standard that will support valid and reliable assessment of individual performance on the standard -- a challenging one, and our understanding of competent adult performance in "learning to learn" continues to evolve.

The empirical basis for the four performance level descriptions for the Take Responsibility for Learning Performance Continuum is data on adult learner performance collected by EFF field researchers who developed and piloted activities and performance tasks based on this EFF standard in their ABE, GED, and ESOL classes. We are particularly grateful to the teachers and learners who "tread new ground" with this standard in order to provide rich descriptions of learner performance of the standard in their instructional contexts. Our current data does not support definitions of performance levels below or above the four levels we have described. In the future, research to support the description of higher performance levels or of "pre-Level 1" performance levels for more beginning level learners may be developed.

The EFF approach to defining performance levels for *Take Responsibility for Learning* depends on a conception of learning to learn as a goal oriented, problem-solving-focused, integrated skills process. Specifically this process calls for
- Ability to identify and fully understand one's learning needs, and to communicate learning goals based on those needs
- Ability to identify one's own strengths and preferences as a learner
- Ability to identify options for addressing weaknesses and "gaps" as a learner
- ability to select and use appropriate learning strategies (whether general or domain specific), in appropriate sequence or combination, to reach the learning goals; and
- ability to plan, carry out and monitor the effectiveness of learning processes, and to flexibly adjust the approach as necessary to reach the learning goals.

In addition to analysis of EFF field research data, we conducted a review of available research regarding learning styles and strategies. In the background resources we studied, we found broad agreement that the development of "learning-to-learn" proficiency is demonstrated through progressively more efficient, fluent, and independent performance in addressing increasingly complex and novel learning goals.

The EFF approach to defining the standard *Take Responsibility for Learning* outlined above has been influenced by cognitive psychology research into the nature and development of expertise in thinking, learning and remembering. Berryman's definition of learning cited above suggests that "transforming what is unfamiliar into the mastered" requires the ability to
- Identify the limits of one's knowledge,
- Ask germane questions, and
- Identify and "penetrate" sources of information

Weinstein and Meyer suggest that both student-directed learning and teacher-directed instruction depend in part on
- What a learner knows (for example, prior knowledge about a content area);

- What a learner thinks about before, during and after a learning activity (for example, strategic planning); and
- What type of personal context a learner generates (for example, motivational level, affective state).

There are many examples in the research literature of attempts to describe models of human cognitive processing, that is, of processing information in the brain. A fairly early model that has resonated in more recent research (in the realms of both "learning skills" and "learning styles" study) was developed by David Kolb (1984). He based his "Experiential Learning Cycle" in the earlier, seminal work of Dewey, Lewin and Piaget. This cycle is represented in four distinct stages of information processing:

- Concrete experience
- Reflective observation
- Abstract conceptualization
- Active experimentation

However, Kolb goes on to argue that an individual's typical mode of thinking, remembering and problem-solving, and individual differences in these abilities, are a function of the at once cyclical and "bi-polar" nature of these four stages; he then defines four types of learners according to preference for two combined cognitive stages: Divergers, Assimilators, Convergers, and Accomodators.

Weinstein (1985) attempted to explicate "the How of learning" by posing four categories of learning strategies that individuals must be able to use in order to learn effectively. They provide a useful organizer for the kinds of strategies targeted for identification, selection and application in the EFF definition of *Take Responsibility for Learning,* and include

1. Cognitive/information-processing strategies (techniques for organizing and elaborating on incoming information to make it more meaningful);
2. Active study strategies (such as systems for note-taking and test preparation);
3. Support strategies (techniques for organizing study time, coping with performance anxiety, directing attention to a particular learning task, etc,); and
4. A range of metacognitive strategies (to detect discrepancies between what one knows and what one does not know, and to monitor and direct the acquisition of new information).

Later, Weinstein and Meyer would explore the characteristics common to such studying and learning strategies, which include a variety of cognitive processes and behavioral skills, the use of which enhances effectiveness and efficiency of learning and the development of expertise. Their description of commonalities among learning strategies is strongly echoed in the description of the purposeful, deliberate integrated skill process represented in the EFF standard and on its Continuum of Performance:

> First, studying and learning strategies are always goal-directed activities. Second, they are intentionally invoked, which implies at least some level of conscious thought as well as active selection. This also means they are available for conscious reflection and description. Third, studying and learning strategies are effortful; they require time and often involve using multiple steps. Finally, they are not universally applicable. One's goals, the context, and the task conditions all interact to determine appropriate strategies to use (p.41).

Equipped for the Future
Take Responsibility for Learning Performance Continuum
Lauren Resnick (1987) delineated the cognitive processes involved in learning to think in an examination of the issues involved in trying to teach "higher order" thinking skills. In this treatment, learning to think like an expert looks very much like engaging in expert problem-solving, and so it aligns well with the problem solving orientation of the EFF standard. It involves
- imposing meaning and structure on information;
- raising questions about presented material;
- elaborating and reconstructing problems into new forms;
- reasoning by analogy to other, similar situations;
- looking for consistencies and inconsistencies in proposed solutions;
- pursuing the implications of new ideas and making modifications as necessary, rather than seeking quick solutions or sticking with initial ideas; and always,
- monitoring understanding.

More recent advances in cognitive science have given us further rich information about how people learn and develop expertise. In 2002, a Commission of the National Research Council studying the teaching of mathematics and science in U.S. high schools was able to offer a significant elaboration on such definitions as those above in their "7 Principles of Learning with Understanding". The following is a brief summary of those principles, principles which are clearly reflected in the definition of the EFF standard:
1. Both new and existing knowledge is structured around major concepts and principles of a given discipline.
2. We use what we already know in order to construct new understanding.
3. Learning with understanding requires the use of metacognitive strategies, that is, strategies for identifying, monitoring and regulating cognitive processes.
4. The strategies and approaches we use, our patterns of abilities, and our preferred learning styles are all a function of the interaction between our heredity and our prior experiences.
5. Our motivation to learn and our sense of self affect what we learn, how much we learn, and how much effort we put in to learning.
6. The activities and practices we engage in while learning shape what we learn.
7. Our learning is enhanced through socially supported interactions. (p. 119)

The following is a brief discussion of additional research that supports key elements of the EFF definition of *Take Responsibility for Learning.*

The "content" of learning to learn: general vs. domain-specific learning strategies

As Resnick (discussed above) addressed the possibilities for teaching higher-order thinking skills, a central question emerged: is there a set of general learning skills, a set of cognitive processes common to all domains of learning, that can be identified and targeted for instruction when we try to help people learn to think? Resnick identifies two primary kinds of strategies utilized in thinking: problem-solving strategies, and executive or self-regulatory processes often referred to as metacognitive strategies. This second category of executive processes includes such activities as keeping track of understanding, initiating review or rehearsal, and deliberately organizing one's attention and other resources in order to learn something; such strategies would appear to be domain-independent.

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But the first set, problem-solving strategies, raises more questions. Such processes as means-end analysis, subgoal formation, and development of generate-and-test routines appear to be closely tied to specific content domains. In fact, Resnick argues, specific content area knowledge plays a central role in reasoning and thinking. This position is hardly surprising given the focus here on the problem-solving orientation of thinking and learning; in fact, researchers and practitioners appear to also be engaged in an ongoing controversy concerning whether adults should be taught problem-solving strategies that are general or strategies that are specific to a content/curriculum area. First, it seems clear from research findings that domain –specific strategies are less applicable across domains but more powerful within the domain. Resnick picks up on this insight by questioning the wisdom of teaching learning strategies within a particular discipline and then "hoping for transfer". There is no strong empirical support for the expectation of transfer between content areas – but this may be due in part to the fact that teaching has not been aimed at building transfer.

Second, according to Nitko (2004), it appears that problem-solvers tend to use both domain-independent and domain-specific strategies under different conditions; when people are unfamiliar with a content area they use general strategies, but as they develop expertise in domain-specific content understanding they increasingly use content area-specific strategies. Resnick suggests, then, that educators will best serve their learners by focusing their instruction explicitly on producing general thinking and learning skills in the context of particular disciplines.

Nevertheless educators, workforce development specialists, and others working with adults stress the development of general thinking, learning and study skills to be applied across the multiple domains of learning and activity that are the focus of their efforts. Resnick reviews several structured programs currently in use that are aimed at developing general, problem-solving-oriented thinking skills. For instance, CoRT (which takes its name from the Cognitive Research Trust, established by Edward De Bono at Cambridge, England) is a widely used (internationally, in schools and businesses) thinking skills program that focuses on mastery of a set of "attention-directing" tools to, among other activities,

- Consider multiple sides of an issue;
- Consider consequences of decisions;
- Select objectives and weigh factors; and
- Generate and evaluate evidence.

Instruction is designed to be as content-free as possible, staying focused on quick use of taught strategies and the number and variety of ideas generated.

Another program designed specifically for school-aged children is the Productive Thinking Program. It employs general strategies similar to those found in the CoRT program, with versions of planning strategies (such as how to analyze a task and outline an action plan) and metacognitive processes related to information processing and fluency of idea generation. But it also addresses building motivation and self-concept as a problem solver (for instance, teaching how to resist immobilization caused by fear of failure).

Then there are programs at every educational level that claim to improve general study skills. Almost all of these are based on cognitive research in reading and involve strategies related to elaborations on text; in fact, Resnick asserts that in these programs, "study" and "reading" strategies are almost indistinguishable. The kinds of study skills covered all look like characteristics of expert readers: skimming, using context clues to figure word meanings, self-testing to check understanding, and generating summaries. Other techniques usually taught in these programs

include special forms of note-taking that allow one to highlight relations among different parts of text and organize information in some way. And instruction in these strategies is often embedded in more extensive programs that additionally stress such matters as
- Planning one's time;
- Managing study activities;
- Controlling one's mood and anxiety; and
- Deliberately applying strategies in typical academic study situations.

What appears to be missing in these kinds of direct general strategy trainings, though, is the development of good judgment regarding when, and under what conditions, specific strategies should be applied. Deliberate use of strategies is a helpful failsafe when automatic thinking and learning processes break down. But study skills can be overused, applied indiscriminately, or dropped entirely when there is no one close by to insist on their use. It would seem that the best course would be to integrate more focus on self-monitoring strategies.

The EFF approach to this dilemma of general vs. domain-specific learning-to-learn skills has taken 2 close paths. On the one hand, the 16 EFF standards include some in which thinking and learning strategies are tied to a particular knowledge domain and are counted among "key knowledge, skills and strategies" needed for proficient use of the standard (*Use Math to Solve Problems and Communicate* and *Use Information and Communication Technology,* as well as the Communication standards – *Read with Understanding, Convey Ideas in Writing, Speak so Others Can Understand, Listen Actively, Observe Critically).* In the case of the EFF standard *Take Responsibility for Learning*, however, an integrated, domain-independent, goal-oriented and problem-solving-focused learning-to-learn process is defined, and growing expertise is marked on the Performance Continuum for the standard by increasing range and sophistication of both general and domain-specific thinking and learning strategies available to be applied in order to pursue a particular learning goal.

Goal orientation and motivation to learn

When we describe the integrated skill process described by an EFF standard as "problem-solving-focused", we are referring in part to our conceptualization of use of the standard as an application of key knowledge, skills and strategies for some meaningful and clearly-identified adult purpose. In the case of *Take Responsibility for Learning,* the process described by the standard begins with the identification of current and future learning needs, and out of those needs, the articulation of a specific purpose for learning, a learning goal. This goal is, in a sense, the "problem" to be solved. This learning goal, harking back to Resnick's point, defines the particular discipline in which context general learning to learn skills may be explicitly developed. And so too, this learning goal guides the selection, use and monitoring of the most appropriate learning strategies; Weinstein and Meyer, quoted above, insist that studying and learning strategies are always goal-oriented.

Strong goal orientation in learning is closely tied to the learner's positive motivation and self-concept. Kanfer (1990) proposed a cognitively-based "Framework of Motivation" which begins with a learner's goal choice. Once a clear goal is established, the learner can draw on a sequence of self-regulation strategies – for self-monitoring of current performance, for self-evaluation (comparing current performance with the learning goal), and for self-reactions (self-satisfaction or self-dissatisfaction with progress toward achieving the learning goal). Self-reactions then affect one's self-confidence, that is, one's self-perception based on judgments about future capabilities to

perform a particular task at a particular level. And positive self-perception strengthens motivation to learn. In the EFF standard definition, the process of learning to learn explicitly requires one to seek out learning opportunities that are goal-oriented and that allow one to build a positive self-perception as a learner.

<u>Multiple Intelligences and Learning Styles</u>

While our body of knowledge about the cognitive/problem-solving and metacognitive strategies involved in learning to learn grows, so too does the interest in the area of "cognitive styles", that is, the characteristic and typically preferred modes of processing information employed by different learners. This body of research looks not at the ability to utilize strategies, but at one's preferred ways of using that ability, and it has been strongly influenced by the work of Howard Gardner. In studying the cognitive development of children, Gardner (1991) argues that acquiring knowledge and developing deep understanding involves the interplay of one's sensorimotor ways of knowing and one's symbol-using capacity in the emergence of multiple intelligences. He identifies seven of these intelligences: body/kinesthetic, interpersonal, intrapersonal, logic/mathematical, musical/rhythmic, verbal/linguistic, and visual/special. In the early stages of learning, one needs to be allowed to fully explore the environment so as to be drawn into the use of various literacies – the languages of multiple disciplines and crafts – and to become familiar with the materials of the physical and social world. In this context one can have ample opportunity to exercise relevant intelligences, and assimilate and master information, while immersed in an atmosphere that encourages the emergence of verbal, numerical and scientific literacy. With such a foundation, later learning can be more focused, allowing one to probe more deeply into particular disciplines. Here Gardner was especially interested in the notion of "apprenticeship", a multisensory context for learning in which one has opportunities to see the most developed versions of particular skills being usefully deployed, to participate in activities that cultivate those skills, and to interact with experts.

So Gardner's work has encouraged educators to take into account individual differences in cognitive abilities and ways of knowing when constructing opportunities to learn. Another important model that has fed increased attention to individual learning styles is the Meyers-Briggs Personality Type Indicator. These initiatives have engendered any number of frameworks for classifying cognitive styles, from broadly conceptualized to granular and exhaustive. To name just a few:

- As noted earlier, Kolb (1984), in his treatment of Experiential Learners, identifies four types in terms of their typical mode of thinking, remembering and problem-solving -- Divergers, Assimilators, Convergers and Accomodators;
- Felder and Silverman (1988) developed an "Index of Learning Styles" along four sets of opposing dimensions – active/reflective, sensing/intuitive, visual/verbal, and sequential/global; later (in 2002) they updated their framework with a focus on individual style dimensions from Meyers-Briggs;
- The Dunn and Dunn Learning Style Model (1999) contains 21 elements of learning preference grouped according to 5 "stimuli" – Environmental (sound, light, temperature, design), Emotional (motivation, persistence, responsibility, structure), Sociological (self, pair, peers and team, adult/authority figure, variety vs. concentrating in routines and patterns), Physiological (perceptual, intake, time, mobility), and Psychological (global-analytic, hemisphericity [left vs. right brain], impulsive-reflective).
- The VARK framework (2001) is composed of excerpts from the 18+ dimensions treated by Meyers-Briggs, and focuses on four key preferences for taking in and putting out

information in a learning context, preferences which are open to self-modification – (V)isual, (A)ural, (R)ead/Write, and (K)inesthetic;

Whatever framework one chooses as the most useful tool for understanding and classifying diverse learning styles, it is clearly of great benefit for individual learners to be aware of the conditions under which they study, think and learn most efficiently and effectively. Obviously, this is especially true when learners enjoy the opportunity to act on their awareness – to establish and pursue learning goals that are authentically meaningful to them; to choose learning activities and strategies that best fit with their strengths and preferences; and to manipulate the learning environment so that it is as comfortable, supportive and stimulating as possible. The definition of the EFF standard *Take Responsibility for Learning* explicitly integrates a focus on this kind of awareness, and the willingness and ability to act on it, as key characteristics of proficiency in learning to learn.

The social dimension of the thinking and learning process

While due attention is being paid to the importance of identifying and taking best advantage of individual cognitive styles in learning, cognitive scientists are also deeply interested in the interplay of individual and social learning processes. Resnick (1987), in an exploration of higher-order thinking in domain-specific problem solving, articulates the important role of social interaction in uncovering the thinking and learning that occurs during that activity. Through such protocols as "think-alouds" and pairs or team work, thinking and learning can be made transparent as learners justify their problem solutions to each other, and evaluate each other's solutions. Further, regarding the ability to build new learning on prior knowledge, Resnick reminds us that anyone's subjective experience can be misleading, that is, might suggest greater knowledge or proficiency than is there in reality. To check for this, learners working together can provide regular challenges to each other, and can provide each other with experiences that reveal the actual extent of understanding of a task or of the material being learned.

With the caution that little empirical work has yet been done with adults, Resnick elaborates on several promising formal teaching and learning models that make explicit this interplay between individual and social learning-to-learn processes, and that focus on good judgment and self/peer monitoring in the selection and use of thinking and learning strategies. Among them are
1. Reciprocal teaching, in which a teacher and students work cooperatively to develop an interpretation of a text. All participants take turns posing questions about and summarizing parts of the text; sometimes they predict what will come next, and sometimes ask each other for clarification. They evaluate and try to improve each other's questions and summaries, but they do not focus on actually answering each other's questions. Learning proceeds in a social setting where the teacher and learners share responsibility for text interpretation. Teachers play a critical role in modeling and "thinking-aloud" the processes; as their understanding and confidence grow, students take over.

2. Cooperative learning, in which peers work together to enhance individual acquisition of knowledge and skills. The stages of this cooperative effort include
   - Precooperation (creating goals and incentives, selecting learning techniques, making group member assignments, training participants in their roles);
   - Cooperation (possibly scaffolded by worksheets, visual displays, computer assistance, etc.);

- Postcooperation (where group members examine how they have functioned individually and as a team); and
- Outcome assessment.

The Continuum of Performance and level descriptors for The EFF standard *Take Responsibility for Learning* describe, and allow for assessment of, proficient performance and achievement by an individual at four developmental levels. Nevertheless, the integrated skill process defined by the standard at each level easily and importantly accommodates the social dimensions of learning to learn such as those discussed above – especially in activities related to monitoring content understanding and the outcomes of strategy selection and application.

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