# 2.3.3 Classification of Learning Skills

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The Classification of Learning Skills for Educational Enrichment and Assessment is an organizational scheme created by a team of process educators over a ten-year period. The Classification helps educators and learners identify and understand the nature of transferable learning skills that apply to multiple disciplines. Four distinct but interconnected domains comprise this scheme: cognitive, social, affective, and psychomotor. These are further developed in their own respective modules. (Though the authors acknowledge the existence of a fifth domain, the spiritual one, they have elected not to include it in this discussion.) Language development provides a common platform for all of the domains. Assessment provides a common core for improving performance in all domains. This module describes the educational philosophy behind the Classification and the rationale used to identify learning skills within it, as well as the features of this scheme that enhance teaching/learning effectiveness.

## Need for the Classification

Educators committed to applying learning theory to educational practice have long needed a shared language to use in discussing learning skill development. This is especially important among faculty engaged in general education classes, designers of active learning curricula, and members of accreditation committees striving to connect course-level learning outcomes with program-level outcomes. The Classification is introduced as a framework for advancing understanding about the nature and inter-relationships of learning skills across all academic disciplines. It integrates key findings in pedagogical research, including the following:

1. Learning involves building a tapestry of conceptual, procedural, and meta-cognitive knowledge (Bransford, Brown, & Cocking, 2000).

2. Learning results in subject matter mastery, transferable long-term behaviors, and mature perspectives that can be both measured and elevated (Dewey, 1997).

3. Subject matter mastery (conceptual development in an area of knowledge, joined with fluency in applying it) can be planned, cultivated, and assessed, using modern derivatives of Bloom's taxonomy (Anderson & Krathwohl, 2001).

4. Focusing on a small set of life skills at one time helps learners integrate these skills in their lives and elevate their daily performance (Covey, 2004).

The developers of the Classification began by recognizing that each discipline has its own special concepts, tools, language, and performance rubrics. However, they decided not to attempt a lengthy compilation of many overlapping skills. Instead, they chose to highlight a smaller listing of general learning skills that appear in multiple learning contexts (Krumsieg & Baehr, 2000).

The Classification has evolved into a comprehensive model of transferable procedural knowledge that can be used to address a number of educational research questions of interest to higher education. Which learning skills are most critical for a well-rounded education? How do individual learning skills relate to each other? How can they best be taught, especially in concert with the content-mastery skills essential to specific disciplines? How should these learning skills be measured and documented? How can these skills be best communicated to support transfer from one discipline to another?

## Anatomy of a Learning Skill

Learning skills are discrete entities that are embedded in everyday behavior and operate in conjunction with specialized knowledge. They can be consciously improved and refined. Once they are, the rate and effectiveness of overall learning increases. They can be identified at an early stage of a learner's development. No matter what the person's age or experience, learning skills can be improved to higher levels of performance through self-reflection, self-discipline, or guidance by a mentor. This growth in learning skill development is usually triggered by a learning challenge of some kind and is facilitated by actions built on a shared language between mentor and mentee. Finally, the growth and development of a learning skill is sustained by quality assessment and feedback. These factors underlie the rubric for learning skill development presented in Table 1. Note how these change incrementally as one progresses from the rudimentary (Level 1) to the sophisticated (Level 5).

*Table 1*  **Stages of Learning Skill Development**

| | |
|---|---|
| *Level 5* **Transformative Use** | The skill is expanded and integrated with other skills so that it can be applied in new contexts that inspire other comparably skilled people to investigate its use for their own purposes and possible emulation. |
| *Level 4* **Self-reflective Use** | The skill can be self-improved and adapted to unfamiliar contexts with occasional advice from a mentor. |
| *Level 3* **Consistent Performance** | The skill is routinely called upon and effectively applied in multiple contexts by the user, who is consciously directing the effort, frequently with the help of a mentor. |
| *Level 2* **Conscious Use** | The skill can be used proactively by a learner, but its use needs to be constantly encouraged and supported by a mentor. |
| *Level 1* **Non-conscious Use** | The skill appears on a reactive basis in response to an immediate need, but without the awareness of the learner or of those surrounding him. |

## Assumptions about Learning Skills

The Classification of Learning Skills is based on several assumptions. First, by focusing on a small set of transferable, mutually exclusive learning skills, educators have an opportunity to build shared language about learning performance. Admittedly, there are many more learning skills than those featured in the Classification; in addition, the labels educators use to describe these often differ from one person to the next and from one discipline to the next. So, in order to work more productively across classroom and temporal boundaries, it is helpful to have a broadly recognized system for naming these skills. Second, a rubric for learning skill development helps educators and learners to understand and assess individual skills. However, it is important to keep in mind that learning skills are developed through practice and feedback; they cannot be elevated through conceptual knowledge alone. Third, a person only recognizes the need to learn a new learning skill when he or she cannot perform a task at a certain level—in other words, when the current skill level is less than that required for the task. If the learner perceives a task to be less challenging than his or her level of competence, he or she will not seek higher-level skills to do it.

## Organization of the Classification

The Classification of Learning Skills embodies a deliberately selective grouping of essential yet discrete learning skills. Each one is assigned only to the domain where it is most commonly applied; that placement is determined by a decision as to where it first becomes most critical to learning performance. While skills related to thinking processes are "housed" within the cognitive domain, those related to interpersonal processes can be found under the social domain. Similarly, skills related to attitude and emotional development are located in the affective domain, and those connected with body development and control, under the "psychomotor" domain.

The Classification of Learning Skills can be visualized using a four-sided pyramid situated on a base plate (Figure 1), with each side of the pyramid representing one of the domains. Language development lies at the base of this pyramid because this is essential for the conscious development of any learning skill in any domain. Assessment is a unifying feature that integrates learning skill improvement at all levels of learning skill use and development. Along each side, the processes associated with each domain are listed in hierarchical order. High-level learning skills associated with processes at the top of the

*Figure 1*  **Domains and Process Areas in the Classification of Learning Skills**
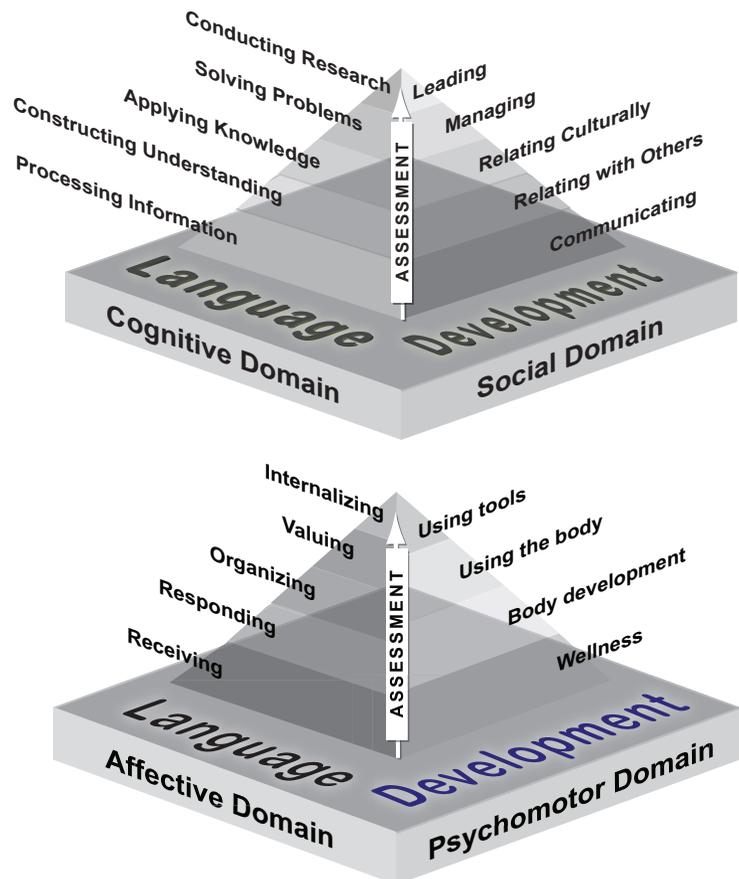
pyramid rely on lower-level learning skills associated with processes at the bottom of the pyramid. For example, within the cognitive domain, processing information should be addressed before tackling skills associated with the processes of constructing understanding, applying knowledge, solving problems, and conducting research.

Within each process area, learning skills are organized into clusters, as illustrated in Table 2. This example explores one of the five skill clusters that support information processing. Unlike the process areas, the skill clusters associated with a particular process area and the specific skills associated with each cluster do *not* follow a hierarchy. A listing of skill clusters and specific skills in the process areas that make up the cognitive, social, affective, and psychomotor domains are shown in companion modules.

*Table 2*            ***Example of a Skill Cluster***

| Domain | cognitive | |
|---|---|---|
| Process | processing information | |
| Cluster | collecting data (from disorganized source) | |
| **Skills** | observing | *seeing details in an object/environment* |
| | listening | *purposeful collection of aural data* |
| | skimming | *inventorying using key prompts* |
| | memorizing | *active mental storage of information* |
| | recording | *transcribing key information* |

The development of this Classification scheme has evolved over time, with infusions from several different traditions of scholarly research. Initial work on this system, guided by Bloom's taxonomy (Bloom, 1956/1997), focused on the cognitive domain—specifically focusing on comprehension, critical thinking, and problem solving. Later, research projects such as the SCANS Report (Secretary's Commission on Achieving Necessary Skills), focusing on communication and teamwork skills (SCANS, 1991), inspired much of the work on the social domain. Work on the affective dimension of the pyramid was shaped by current self-improvement and leadership literature that highlighted the role emotional skills play in personal and professional life (Goleman, 1997). It should also be noted that this Classification system has been debated, discussed, and developed extensively in a variety of educational institutions. By dialoguing about the design, implementation, and measurement of general education courses, educators across the nation have helped refine this approach. Even now, the Classification remains a work in progress, subject to new insights derived from classroom and clinical research.

**Selection and Placement of Learning Skills**

Each of the skill listings in the Classification was brainstormed, located, and validated by several cross-disciplinary teams consisting of up to a half-dozen faculty members working in Pacific Crest institutes. This typically began by writing short definitions of potential "candidate" skills that were then placed within a process area and assigned key attributes. Table 2 shows examples of the learning skills involved with the skill cluster "collecting data."

To be considered for the Classification, each learning skill was then tested against all of the following criteria:

- Improvement in this skill had to lead to enhancement of learning performance
- The skill had to be accessible and usable at all times
- Performance in this learning skill had to be unbounded, i.e., it could be "grown" to progressively higher performance levels
- The skill had to be transferable across disciplines and contexts
- The skill could apply to multiple forms of knowledge (***2.3.9  Forms of Knowledge and Knowledge Tables***)
- The skill had to be a holistic element which could not be subdivided, i.e., it could not be either a label for a cluster of skills or a label for a process
- The skill was not a process consisting of multiple steps

Once a skill passed all of the above tests, it was associated with a predominant domain and linked with the appropriate skill cluster. The skill cluster was then examined to ensure that it formed a compact, complete, and non-overlapping set; in other words, that nothing essential was left out or shared with another cluster. In this process, the following conditions had to be met:

- Each of the skills had to be distinct and provide unique added-value to the set
- The skills had to be worded concisely, congruently, and completely so that there could be no room for improvement in the definition
- The skills could not be critical to learning performance at the next lower process level

As candidate skills were considered for the Classification, definitions were refined so that they represented something unique and essential. This continued until all redundant learning skill components had been parsed out and nothing new remained.

## Using the Classification

By incorporating the transferable learning skills found in the Classification into instructional design and delivery, process educators have found ways to make subject matter mastery more authentic (Hanson & Wolfskill, 2000). They have also developed ways to accelerate learning by using appropriate follow-on activities based on the skill levels they have identified (*2.2.3 Developing Working Expertise (Level 4 Knowledge)*, *3.2.1 Overview of Facilitation*, and *4.1.1 Overview of Assessment*). Thus, optimal instruction blends discipline expertise (i.e., *applied* knowledge, such as solving an algebraic equation or critiquing a play) with performance in general learning skills (i.e., *process* knowledge, such as critical thinking, teamwork, problem solving, and language development.)

Process educators have also noted that learning skill growth in one domain can leverage growth in other domains (Krumsieg & Baehr, 2000). For instance, growth of learning skills in the affective and social domains can occur relatively quickly and can have a positive impact on skill development in the cognitive domain, where growth occurs more slowly (*3.1.1 Overview of Quality Learning Environments*, and *3.1.2 Introduction to Learning Communities*).

Instructors who see the essential connections between skill development and subject matter mastery will find the Classification of Learning Skills to be a useful tool for course design and delivery. Yet, they are wise not to address too many of these learning skills at once. Instead, they are well advised to focus on those skills that are best matched to their students' developmental and disciplinary needs. The Classification can help determine which lower-level skills should be cultivated before addressing the more sophisticated ones. These choices are critical to effectively tailoring learning activities to different student populations; they are also key to articulating learning outcomes at different points in a program (*1.5.2 Methodology for Designing a Program Assessment System*).

## Concluding Thoughts

The Classification of Learning Skills for Educational Enrichment and Assessment is an important tool for facilitating learners' growth and development, measuring and documenting growth, self-assessing performance, and improving instructional design for skill development. It builds upon and continues to incorporate a wide range of theories to improve lifelong learning skills to increase subject-matter mastery. Finally, the generation of this Classification has sparked interest in new kinds of questions related to the identification and understanding of learning skills. Research issues have arisen regarding the measurement of learners' growth and development, the role of faculty in mentoring, and the importance of skill development to learning as opposed to an exclusive focus on content mastery. Faculty who use this Classification to strengthen their own skills will find they can significantly enhance their teaching, research, and service to the profession.

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