Using the Learning Combination Inventory

The odds for success in the classroom increase when teachers and students understand how people differ in their approaches to learning tasks—and then use that understanding to create strategies for learning.

I planned carefully. I prepared diligently. Yet lesson after lesson, I experienced the same situation. Two minutes into the activity, Dale had his hand up to ask the exact number of words I expected for each answer. Chris had started the assignment before I finished my explanation, and already I could see she was not following the directions. Gary, my quiet one, listened to the directions, but then sat with his notebook closed, staring out the window, totally disengaged. Five minutes later, Mardi was the only student on task.

But how was this possible? What happened to this well-planned lesson?

The answer is simple. Although I had studied the content and carefully selected the activities, I had failed to consider the learners. I assumed that my students naturally knew how to follow directions, discern the key facts from the incidental, and complete the assignment. I believed that every learner was equally at ease with each of these actions of learning. My admonition, like the athletic motto, was “Just do it!” I was wrong on all counts.

It wasn’t until I understood certain aspects of the learning process that I was able to solve the puzzle of how my teaching could positively affect my students’ learning. Now I issue no more quick directions, no more admonitions to “stop asking so many questions,” and no more criticism of the student who wants to work alone.

My understanding evolved as I conceptualized learning as an Interactive Learning Model (Johnston 1996)—how we process information (cognition), perform learning tasks (conation), and develop a sense of self when engaged in learning tasks that do not always come naturally (affectation—related to affect). Moreover, everyone approaches learning tasks with varying degrees of sequence, precision, technical reasoning, and confluence (unique ideas). These patterns strongly influence a student’s ability to respond to classroom learning activities.

To measure a learner’s characteristic use of these patterns, I developed the Learning Combination Inventory (LCI) (Johnston and Dainton 1996). Over the past four years, the LCI has been used with more than 15,000 students in public schools, private schools, and colleges, as well as teachers, parents, and administrators, in the United States and Europe.

The Interactive Learning Model

Of the three elements of learning in the Interactive Learning Model, cognition is the most familiar. It is the act, or process, of knowing—how we grasp information. Indicators of a learner’s cognitive aptitude include evidence of one or several intelligences (Gardner 1995) and the array of a person’s life experiences.

Conation, which guides performance, includes the learner’s pace of performance and degree of autonomy when learning. Conation determines the learner’s agility in using personal tools of learning, such as meticulous wording, a clear plan of action, and tactics aimed at solving real-life problems. Learners do not use these tools with equal agility. Thus, students vary not only in their cognitive aptitude but also in their proficiency in using conative tools.

Coinciding with the interaction of cognition and conation is affectation. Recent interest in a learner’s emotional quotient adds credence to the already...
existing awareness that feelings strongly affect the learning process (Goleman 1995). The affective mental process confirms for the learner the sense of “I can do the assignment” and “I can succeed!” Related to self-esteem, affectation is a barometer of confidence. When given the opportunity to use conative tools in concert with the cognitive process, the learner develops poise and the desire to continue to learn.

The Learning Combination Inventory

The interaction of cognition, conation, and affectation forms four patterns of learning behavior: sequential, precise, technical, and confluent.

1. Sequential: following a plan. The learner seeks to follow step-by-step directions, organize and plan work carefully, and complete the assignment from beginning to end without interruptions.

2. Precise: seeking and processing detailed information carefully and accurately. The learner takes detailed notes, asks questions to find out more information, seeks and responds with exact answers, and reads and writes in a highly specific manner.

3. Technical: working autonomously, "hands-on," unencumbered by paper-and-pencil requirements. The learner uses technical reasoning to figure out how to do things, works alone without interference, displays knowledge by physically demonstrating skills, and learns from real-world experiences.

4. Confluent: avoiding conventional approaches; seeking unique ways to complete any learning task. The learner often starts before all directions are given; takes a risk, fails, and starts again; uses imaginative ideas and unusual approaches; and improvises.

Using the Learning Combination Inventory, teachers can measure the degree to which a student uses or avoids each pattern. To complete the LCI, students select one of five responses, ranging from “Never Ever” to “Always” for 28 descriptive statements (see sample items, p. 81).

In separate, written comments, students explain what frustrates them most about learning, how they would like to show what they know, and how they would teach if given the opportunity. These responses validate the numerical scores of the first part of the LCI.

This internal validity check makes the inventory extremely reliable. If a student scores high on statements that represent sequence and then writes, “I need to see a sample of the work before I begin” or “I like it when the teacher gives step-by-step directions,” the student has validated the scale score for sequence. Students whose scale scores indicate a high degree of precise processing may write, “I want to know exactly what is expected” or “Don’t make me guess what I need to know. Tell me.” Those who use a high degree of technical reasoning may write, “I’d rather be at home, working on my own” or “I wish we could do more projects.” Those who score high in confluence frequently decry having to do what the teacher says, “especially when I have a better idea.”

Validity checks can occur even while students are completing the inventory. For example, a 3rd grade boy asked the counselor administering the LCI, “How do you spell nauseous?”

The counselor replied, “Just sound it out, and do your best.”

“No,” the boy insisted, “I have to spell it right.”

The counselor later recounted, “I knew right then that this child’s pattern of preciseness was very high.”

The boy’s written response confirmed the counselor’s conclusion: “When I don’t have the right answer, I become NAUTISUS.”

The internal validity of the LCI holds true regardless of age, gender, or classi-
lication as a learner. For example, 8-year-old, highly confluent Emily wrote, “Dear Mrs. Poloff, Pleez DON’T make me wate for dereshons. I want dereshons only if I need them.”

Cassandra, a 17-year-old whose scale score for confluence was identical to Emily’s, wrote, “Don’t give me lots of instructions. Let me be creative. I’d like the teacher to get out of my way and let me learn how I would like to learn.”

Understanding How a Child Learns

Appreciating that all learners display a combination of these patterns is central to understanding any learner. Take, for example, the student who uses technical processing but avoids precise processing. Most likely this student writes very little and says even less. Often this student is labeled “aloof” and “nonverbal.” Eight-year-old Eric was considered a nonreader and a nonspeaker. Yet his mother said he read at home and liked to build things. He had devised a doorbell for his bedroom, and in school he had asked permission to install a burglar alarm on his locker.

This “budding Edison” read Mechanics Illustrated but wouldn’t read about fictional characters because “they can’t teach me about the real world.”

Another example is Ashley, whose teachers described as domineering, subtly defiant, and intentionally aggravating. In her literature class, “Everything has to be Ashley’s way. Her ideas dominate our discussion.” In math, “She methodically organizes everything on her desk—including her pencils and erasers—heading her paper and numbering the items on her paper before she begins to do a single math problem. Other students are done with the task before she even starts.” In her language arts class, “She spends time asking, ‘What’s another word for . . . ?’ and then goes to the thesaurus to look it up. It takes her forever to complete her writing assignment.” Yet all three teachers stated that when her work was completed, it was always exceptional.

Ashley’s LCI scores indicated she was high in sequence, high in precision, and high in confluence. As a result, she was a very strong-willed learner. After seeing her LCI scores, one of her teachers commented, “Now that I understand her level of preciseness, I realize her need to have exact words to express her thoughts.”

Her literature teacher commented, “Not only do I understand her better; she understands herself. Now I can work with her better, and so can her classmates.”

Special needs students have the same patterns as other learners; however, their patterns are often overshadowed by their learning disability. A case in point is Mark, whose failure to follow directions led his teachers to describe him as “defiant, uncooperative, and refusing to do work.” Mark’s LCI scale scores indicated that he avoided sequential processing, and he explained himself this way: “I want to follow directions, but directions feel like someone putting their hand on my head and pushing down on me all the way through my stomach to the bottom of my feet.” His score and explanation indicated his failure to follow directions was not a matter of bad behavior but of his learning process. His teacher reacted by saying:

Once I understood what Mark was feeling, I was able to respond to his learning process instead of reacting to his not following directions. My strategy for helping Mark began by teaching him the importance of following directions and how to do the simplest two-step directions.

The Let Me Learn Process

Whatever schools provide, whatever teachers do, in the end, it is the student who must use the resources to acquire skills and knowledge (Levin 1995). Having information about a student’s combination of learning patterns is the place to begin understanding how a child learns—but it is only the beginning. Next, students must be given the tools to develop strategies to succeed in learning and in meeting the rigors of assessment.
In the context of the Interactive Learning Model and the LCI, this next step is called the Let Me Learn Process. As one teacher describes it, “The Let Me Learn Process takes the theory of the Interactive Learning Model and the LCI scores and puts that information in the hands of the learner.” Instead of labeling students, the process empowers them. The process requires that both teachers and students discuss, value, and respect learning combinations that differ from their own and show patience with these differences.

“Codes of Responsible Teaching and Learning”—central to the Let Me Learn Process—involves commitments by both teachers and students to maximize the use of students’ learning combinations.

Two examples illustrate how the Let Me Learn Process can work in the classroom.

Shane, an elementary student, frequently disrupted the normal classroom setting. Shane’s LCI confirmed his teacher’s observations. His scores indicated that he was highly technical and confluent. The teacher began helping Shane develop a “place to be” when he needed to get away. He now has two desks—one he can retreat to and, as he says, “wonder and ponder,” and another where he works in a group setting. The change has led to marked improvement in his classroom behavior.

To deal with his lack of written responses on tests, his teacher has allowed him to go to a quiet area and tape-record his answers. This enables him to use his confluence to verbalize his thoughts and his technical reasoning to operate the recording and transcription equipment. The goal is for him to gain enough confidence in his ability so that by the end of the year, he will be able to eliminate the first two steps and write thoughtful answers on tests.

For Leon, assignments were a lost cause. He lost track of everything—time, materials, directions, and interest in learning. His report card consisted of mainly Ds and Fs. His LCI scores indicated he avoided sequence and relied on technical reasoning. With that information in hand, he and his teacher developed a strategy. He teamed up with a highly sequential student who helped him get organized. His teacher described the transformation:

He has learned to seek advice on how to begin assignments and how to meet deadlines. He has a special place where he keeps his most important papers, and he now carefully records his assignments in his assignment book. He has also learned to feel successful by demonstrating his knowledge through his technical skills. On “River Run Wild,” he chose to construct a diorama, which he completed on time and which met all the requirements. This was a first. In the cooperative group project, he took pride in constructing a bridge. He could see how comfortable he felt working with the tools. He got great feedback from the group, too. This marking period, he has earned all Cs. We both feel we have succeeded. We have formed a real learning partnership.
Teachers and Students Working Together

As Gary Fenstermacher (1990) states, "Education is not something we do to people; education is something people do for themselves—assisted we hope by the efforts of teachers" (p. 759). The first step in meeting the needs of learners is to understand how they learn—to recognize that organization, searching for detailed information, problem solving, and risk taking are not natural learning behaviors for all students. The next is to have students understand how they can make their unique learning patterns work for them.

Understanding a student's interactive learning patterns gives teachers a powerful tool to shape a welcoming learning environment. When teachers direct their efforts at how children learn, the process of education will succeed. We have the tools to understand how children learn; all we need to do is use them.

References


Author's note: The examples included in this article are drawn from the experiences of teachers in six elementary and secondary school districts: Judith McLaughlin, John Evans, Mary Anne Hilbert, Debra Neill, Mardella Lesher, Esther Biermann, Michael Bucchialia, Sandra Dorrell, Lorraine Pfeffer, Linda Dickinson, and Mary Beth Foster.

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