# Introduction: Learning Design

*Education is a natural process spontaneously carried out by the human individual, and is acquired not by listening but by experiences upon the environment.*

—Maria Montessori,
*Education for a New World* (1963)

Teachers who embrace constructivist learning constantly seek ways to create the environment Montessori describes. Many educators have deepened our understanding of constructivist learning (Brooks & Brooks, 1993; Fosnot, 1996; Lambert, 1998). They described their theoretical assumptions about constructivist learning and offered principles for applying this theory in teaching and administrative practice. Our work with PreK–12 teachers has shown us that many already design classroom learning experiences for students using a constructivist philosophy. However, few teachers can articulate how they design for student learning, produce consistent results, or link learning to standards. After 15 years of studying planning strategies with our teacher colleagues, we have refined a replicable process that engages students in an active learning episode that we call Constructivist Learning Design (CLD). We deliberately use the words "learning episode" rather than "lesson" because we focus on active engagement by the student learners rather than instruction by the teacher.

The CLD framework is based on three key questions:

1. What are your students expected to learn?

2. Where are your students now in their learning?

3. How will students make meaning about what they are expected to learn?

These key questions are the core of CLD. As you respond to them, your answers will guide your thinking and shape the elements of CLD.

This chapter introduces the process of CLD. The next six chapters describe each element in detail using an interactive process of Constructivist Learning Design to engage you in making meaning. We have designed space for you to write, review, and revise each element of your own CLD. Chapters include an opportunity for drafting, note taking, thinking, editing, crafting a final version, and reflecting on each element. To explicitly model CLD, we invite you to identify a successful lesson you have taught before and use it throughout this process as a foundation for new learning.

The *Situation* section of each chapter describes the purpose, topic, and assessment for each element. You will write a draft of that element in Learning Record A, Element Draft.

The *Groups* section of each chapter provides practical considerations for you to think about with your reflective partner. You can record notes or ideas from this conversation in Learning Record B, Element Notes. We encourage you to meet with a group of reflective partners in a teacher inquiry group, a colleague study group, or a "Learning Circle," as we have described previously (Collay, Dunlap, Enloe, & Gagnon, 1998).

The *Bridge* section of each chapter poses questions about your prior knowledge in Learning Record C, Element Questions.

The *Task* section of each chapter lists characteristics of each element to guide a revision of your element draft in Learning Record D, Element Revision.

The *Exhibit* section of each chapter offers specific examples of elements from different grade levels and subjects. You will write a final version of your element in Learning Record E, Element Final.

In the *Reflection* section of each chapter, we explain the historical precedents for each element from prominent educators and related theory to encourage you to reflect on your thinking and learning as you moved through the chapter and write your reflections in Learning Record F, Element Reflection. Finally, we make some Concluding Remarks to close each chapter.

Chapter 7 is an extended metaphor about CLD as a dance rehearsal so you can visualize the relationship of teaching and learning in a different setting. As you watch one CLD unfold in three different ways, three teachers in separate classrooms portray the art and science of designing for learning.

## SITUATION SECTION: CONSTRUCTIVIST LEARNING DESIGN

The notion of constructivist learning is not new. Jean Piaget introduced the idea that children construct their own knowledge in his book *The Construction of Reality in the Child*, first published in English in 1954. Learners construct their own meaning in acquiring knowledge rather than just memorizing information offered by a teacher. Most of us are familiar with learners who memorize well and can restate facts, but they still struggle to articulate the meaning because they do not understand the concept. This is particularly evident in young children who cannot yet speak. We expect them to communicate what they need so we can understand them. As children engage in dialogue, they gradually build up a repertoire of words and phrases until they are speaking in sentences. Just as we don't teach them how to walk, we don't teach them how to speak. We support their learning and celebrate their progress, but they learn to speak by themselves. Children construct their own meaning through interactions with others. Much of the learning of young children occurs by imitating the modeling of adults and rehearsing the patterns they see and hear.

The concept of CLD is based on our belief that learning is both an individual and social process of constructing meaning. Think of this work as organizing for learning rather than planning for teaching because the focus is on what students will do to learn and what the teacher will do to inspire and support that learning. Much classroom practice is driven by teacher talk and does not engage students. High dropout rates and academic failure have been linked to the boredom of classroom-based instruction: sitting in class and listening to a teacher talk rather than thinking and talking with others (Goodlad, 1984, 2004). The 45 or 50 minutes of class six or seven times a day remains the standard unit of instruction in many high schools and middle schools. Teachers tell themselves and their students that they have "covered the material," and they assume they have taught it properly until they test students. Often, they are disappointed by how little learning students can demonstrate and may then blame students for their lack of motivation. Constructivist Learning Design assumes that learning takes place as students reflect on what was taught and construct

their own meaning as they study with peers or apply new learning outside of school. When students attempt to make meaning without the benefit of interaction or feedback on their thinking, there may be little evidence of understanding. Some undergraduates at the University of California, Berkeley, report that they got good grades and test scores in high school math classes to gain admission, but they never took a college course in mathematics because they did not truly understand the concepts.

The purpose of this chapter is to introduce the six elements of Constructivist Learning Design. The Situation element is designed to answer three key questions so that you can determine your purpose, topic, and assessment. The topic is understanding the six elements of CLD and the relationship between them. The assessment of learning is your definition of each of the six elements. Each chapter element contains three key questions to answer as a concise guide to thinking about that element of a CLD. The next section of this chapter is an overview of how to design for constructivist learning episodes by using the six elements of CLD.

## Elements of the Design

Table I.1, Constructivist Learning Design Template, on the next page, is the framework we use to arrange the six elements in a sequence that organizes your thinking about designing for learning.

The following description summarizes the six elements of CLD:

1. Designs a Situation that describes the purpose, determines a topic, and decides an assessment for student learning;

2. Organizes Groups of students, materials, and furniture to facilitate meaning making;

3. Builds a Bridge between what students already know and what they are expected to learn by describing students' developmental level, socioeconomic circumstances, and cultural background, surfaces their preconceptions, and makes connections to their lives;

4. Crafts a Task for students to accomplish that anticipates questions from students as they engage in tasks, considers responses to these questions so that students will sustain thinking, and describes how students are learning by making social meaning during tasks;

5. Arranges an Exhibit for students to demonstrate the results of their collaborative thinking by producing artifacts as a result of their learning, making presentations of these artifacts, and offering explanations about how they made social meaning; and

**Table I.1**      Constructivist Learning Design Template

**Level:**
**Subject**
**Title:**
**Designers**:

| | |
|---|---|
| **Situation** | |
| **Groups** | |
| **Bridge** | |
| **Task** | |
| **Exhibit** | |
| **Reflection** | |

**Figure I.1**    CLD Schematic
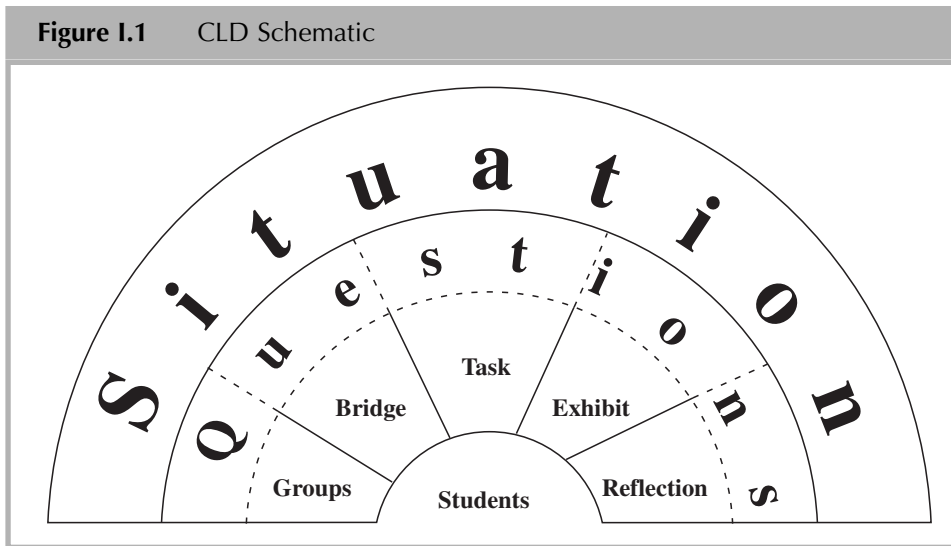
6. Invites Reflection by students on their process of thinking during the learning episode through feelings in their emotional and physical responses, images in their sensory representations, and languages in their consideration of shared and common meanings.

Figure I.1 depicts the relationships among the six elements and the chronological sequence we recommend for designing and supporting constructivist learning episodes.

The CLD begins with a Situation or a comprehensive overview of your learning episode, a clear statement of your purpose for the topic you expect students to learn, and the assessment for student learning that has taken place. As you can see from the schematic, details of the learning episode unfold chronologically through the five other elements.

The CLD continues with your Groups of students, materials, and furniture, then moves to your Bridge between prior knowledge and current learning. Next, you elaborate on the Task that students will accomplish by thinking together. As learners accomplish this Task to your satisfaction and theirs, they create an Exhibit of their thinking. Then you arrange individual and collective student Reflection on their thinking. Your focus in designing a learning episode is structuring the work so students can think together about accomplishing the Task. The Task itself will allow students to demonstrate mastery of standards.

Please use Learning Record I.A, Element Definitions Draft, on the next page, to create a brief definition, in your own words, for each element. You will revise and write a final version of these definitions as you proceed through this chapter.

| **Learning Record I.A** | Element Definitions Draft |
|---|---|

How do you define the Situation element in your own words?

How do you define the Groups element in your own words?

How do you define the Bridge element in your own words?

How do you define the Task element in your own words?

How do you define the Exhibit element in your own words?

How do you define the Reflection element in your own words?

The following section offers ideas about learning for you to consider with your reflective partner or Learning Circle. The Groups section of each chapter encourages colleagues to co-construct their understanding of learning design.

## GROUPS SECTION: LEARNING CONSIDERATIONS

The chapters in this book are designed as working guides to write elements of a CLD and include several Learning Records to document your thinking. We assume you have at least one reflective partner in a Learning Circle with whom to review these learning considerations and clarify your thinking about constructivist learning. You can use constructivist processes to frame learning episodes around people, places, products, and phenomena of interest to students. Content standards determine how students' work will be assessed. A learning episode is a distinct learning event that is part of a larger learning event or one of a series of learning events. You can design learning episodes to engage learners in constructing their own understanding of real learning events. The topic of study should be accessible in a variety of ways, opening many possibilities for the learning episode to become a real-life learning experience. Constructivist learning theory compels teachers to engage learners in formal learning at school, just as they engage informally in learning during life experiences outside of school. Teachers can use a consistent framework to build bridges from student interests and engage students in the kinds of formal, standards-based learning expected at school. Constructivist learning leads to deep, internalized knowledge, which requires the teacher to engage learners in truly making meaning. The following is one example.

Think about how you learned to ride a bicycle. Our experiences were very similar, with a few interesting differences. One of us had an old Schwinn with training wheels. The other learned on a pass-around bike that had no training wheels and was virtually indestructible. It was short with hard rubber tires and rotated through the neighborhood among children who were learning to ride. Both of us had used three-wheeler tricycles, so we already knew how to pedal and steer. One was the oldest child, so the parents had to buy the first bicycle in the family. The other was a youngest child, so all the older kids had bikes of their own. Both of us remember a lot of ceremony around learning to ride. We both pestered our families to get us a bicycle of our own. Training wheels were a great comfort and allowed for a feeling of confidence in being on a bicycle. They also gave one of us a sense of what it felt like to balance on two wheels with the security of outriggers in case we faltered.

Parents were there to help put the training wheels on and take them off when the rider was ready to solo. We both received a lot of support from our parents in learning to ride, including giving verbal directions and encouragement, holding the bike while running along behind, showing concern when we lost our balance, and expressing great satisfaction when we could actually balance by ourselves. The important point is that the experience of learning to ride a bicycle is deep knowledge, something that we can still do without riding every day. Our parents or brothers were our teachers, but they couldn't do it for us. We had to learn to ride a bicycle ourselves.

Thoughtful school learning leaves us with the same kind of deep, internalized lifelong knowledge. Watching another child ride a bike tells you something about it, but you have to experience riding for yourself to learn. You constructed patterns of action for balancing the bicycle and turning the pedals at the same time. You had to feel what it was like for yourself. Even a great description could not give you the knowledge you needed to learn about riding a bicycle. Your knowing came from doing the Task yourself and constructing your own pattern of action.

Recently we encouraged our six-year-old son and his two friends as they learned to ride their bikes without training wheels. Different sizes of bikes, different levels of tolerance for risk, and different attitudes toward failure all influenced their speed and success in learning to balance and pedal on only two wheels. Moving their learning environment from a narrow urban sidewalk to a wide school parking lot with a gently inclined driveway gave them more confidence. Some wanted us to hold them up as we ran alongside, while others didn't want us to do more than give them a safe start. They first learned to turn circles and fall without hurting themselves. Then they learned to coast down the driveway to get a feeling of balance on two wheels. After they were comfortable coasting, they started pedaling the bike before the momentum was gone to maintain speed and balance. In the end, all three learned to ride their bikes, some more quickly and confidently than others, but each in his own way.

In this bicycle example of a learning event, the role of the learner is to create knowledge, not to consume information. Learners want to do what is necessary to succeed and will risk making mistakes and even take some falls to be successful. Others can tell or show learners how to ride a bicycle, but those learning must choose what advice to take. School learning requires the same level of engagement. When children learn to read, write, and do arithmetic, their experience is very much the same as learning to ride a bicycle. Young children are very excited to learn these basic skills if they are offered in a compelling way. Once engaged, the struggle is worth their effort, and they are much more likely to accept coaching about

reading, writing, and figuring. If they aren't engaged, then teaching can be a difficult proposition.

Take some time now to think about these considerations and talk with your Learning Circle colleagues or reflective partner about how real-life learning experiences compare to school learning. Think about whether you agree or how you would change these considerations based on your understanding. Fill in Learning Record I.B, Notes on Learning.

| **Learning Record I.B** | Notes on Learning |
| --- | --- |

Write your notes and ideas about how school learning compares to life learning.

The next section of this chapter raises questions about your understanding of learning.

## BRIDGE SECTION: WHAT IS LEARNING?

We described constructivist learning theory in the Preface and at the beginning of this chapter. In this section, we ask you to answer several questions about how you understand learning and to compare your understanding with this description of constructivist learning. These questions should guide your thinking as you compare your own ideas with ours. This should surface your prior knowledge of learning and support you in connecting with the concepts of learning we encourage you to analyze. Take time to write your answers to the questions in Learning Record I.C, Learning Beliefs.

| **Learning Record I.C** | Learning Beliefs |
| --- | --- |

How do you define learning?

What do you believe about learning?

*(Continued)*

| **Learning Record I.C** | (Continued) |
|---|---|

How is learning related to teaching?

How does constructivist learning differ from your definition of learning?

How does our description of teaching compare to your experience?

When you finish writing, continue on to the next section of this chapter.

## TASK SECTION: LEARNING CHARACTERISTICS

The principles of constructivist learning led to the following characteristics about learners engaged in real-life learning events:

- Learners think individually to make personal or self-meaning about learning events.
- Learners think collaboratively with others to make "social" meaning of learning events.
- Learners connect their prior knowledge and previous experience to learning events.
- Learners pose and answer questions as they think together about accomplishing group tasks during learning events.
- Learners present their thinking about learning events to others and make shared meaning with a class.
- Learners reflect on their individual and collective thinking during learning events and consider standard meaning with a teacher.

These six characteristics about learning through real-life experience must be the foundation for school learning episodes. Each element of CLD addresses one characteristic of learning during real-life events. School learning is most powerful when it clearly parallels real-life learning. We recently reminisced with some former students at one of the first alternative public schools in the country, the Evergreen Open Living School in Jefferson County, Colorado. Many of these now 40-year-olds had not attended college and were successful entrepreneurs who ran their own businesses. Several thoughtful conversations addressed the condition of the environment, the economy, and the education system. Their perceptions and life paths were very consistent with the school's value for lifelong learning and caring between students and teachers and community members. Their schooling experiences included undertaking tasks such as building greenhouses, and this learning was preparation for life. These former students talked about how their school-based experiences were reflected in their worldview and their parenting. They led their children through life learning with love and respect for both learner and learning. They recognized the value of real-life learning experiences provided at our school, and they now "carry the torch with their own children."

To educate is to draw out what is within by articulating and clarifying thinking. Education should be all about learning! Our friend Fred Jacob talks about working with campesinos in the rural mountains of Nicaragua who are not educated but are trained to maintain the water purification systems. They cannot solve problems or complications they have not encountered in training. So when unusual circumstances disable the system, the campesinos wait for the "Norte Americanos" to arrive and figure out what is wrong and then tell them how to fix it. Their training was based on memorizing a routine, not on theoretical understanding.

Constructivist learning is based on learners constructing their own meaning as they think together to accomplish a Task. The nature of the Task should be demanding or challenging enough to engage their attention and focus their concentration. Working with urban youths in schools that are embedded in tough inner-city neighborhoods has challenged some of our mainstream cultural assumptions, but it has not shaken the profound conviction that in any setting, every learner constructs his or her own meaning. The preconceptions and sometimes misconceptions that students carry into classrooms are as much a part of the learning process as what they carry out of the classroom. Another way of framing this goal is to ask, what real learning do you want the kids to take out the door? Seldom is the answer information from a textbook or a short homework assignment; rather, teachers plan for deep, conceptual understanding that is developed over time and can be applied in the real world.

Students must make meaning in classroom settings and apply that learning to their lives. Such academic learning must be realistic, compelling, and credible to students. Many urban learners have little adult support, time, or space at home for schoolwork. Parents often defend their children against accusations made by the school administrators or teachers. Undereducated parents want their children to do well, but they have few models of productive schooling themselves. Math may be a worst-case scenario because few parents of any class feel they learned much math in school, particularly algebra, and fewer think their children will use it very often in either their personal or work lives. Schoolwork is most useful and compelling when it applies to real life. Formal learning must be structured around thinking and making meaning just as informal learning is outside the classroom. Dan Fleming has taught Oakland public school students for 10 years in a self-contained eighth-grade classroom. He successfully moved their collective level of academic success two to three grade levels in one year by relating their school learning to their life experiences.

We now market algebra to students in middle school as a "way of thinking about what you don't know." This approach offers more than

solving for *x*. Instead, learners are required to understand how what they know is related to what they don't know and to determine whether they have enough information to find the answer. Math may be one of the last bastions of a classical education and a powerful gatekeeper that prevents undereducated students from attending college. Like Latin or Greek, it is a school language spoken and used by formally educated people but rarely part of daily life. Education used to be the great equalizer, but now cash may be. Prisons are filled with young and not-so-young men who did not learn algebra or even basic math in school. Another friend, Marty Perlmutter, taught math to inmates in San Quentin and reports that few have a grasp of fundamental arithmetic concepts, such as fractions, integers, and proportions, that are prerequisites for algebra.

In 1997, former Secretary of Education Richard Riley reported research in a white paper (policy report) that recognized the completion of advanced math courses beyond algebra as the most reliable predictor of success in college admission, regardless of ethnic or economic background. Why do our efforts in educational equity miss this mark? Even fully committed and well-trained math teachers find it difficult to interest kids in math. How is it relevant to their lives? Who uses it in their family or community? What outcomes does it offer that street smarts can't buy? How do we convince kids that they need math to survive and succeed? We can't continue to teach algebra and math the way it was taught 150 years ago in the common schools of Massachusetts.

Teachers don't need to be experts in explaining or telling what they know. Instead, teachers should be experts in learning and know how different individuals learn. We continue to present the illusion that every child learns the same way by structuring classroom learning one way. The learner experiences school as a department store that has general merchandise that may or may not fit. Only the privileged can choose to shop at specialty stores. Imagine shopping at a large department store for men's shoes. You can only get a medium width in sizes 8 to 12. If your feet are smaller or larger or narrow or wide, you are out of luck. You can go to a special shop for shoes, but we have few specialty public schools. How do we measure the fit of the learning model to the student? What kind of learning is being measured? Who sets the standard?

Students with good memories can regurgitate factual information about what teachers or textbooks have told them. Such short-term memorization required of them is fairly easy to measure. However, retelling facts does not lead to deeper learning, and more authentic assessments are essential to learning design. A few tests now measure problem-solving ability and require students to describe their thinking or explain their answers. These tests cannot be scored by a computer scanner. Students

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need individual, expert analysis by competent peers and teachers. Comprehensive and timely assessment that captures how students learn what they know is central to our design.

Based on these learning characteristics, rewrite your definition of each CLD element and explain its order in a CLD in Learning Record I.D, Revised Element Definitions, which begins below.

| **Learning Record I.D** | Revised Element Definitions |
| --- | --- |

Situation definition and explanation of why it is first:

Groups definition and explanation of why it is second:

Bridge definition and explanation of why it is third:

*(Continued)*

**Learning Record I.D**   (Continued)

Task definition and explanation of why it is fourth:

Exhibit definition and explanation of why it is fifth:

Reflection definition and explanation of why it is sixth:

Now proceed to the next section to prepare a final version of your CLD element definitions and explanations.

## EXHIBIT SECTION: FAIRY TALES LEARNING EPISODES

Here is a sketch of an exemplary CLD. A team of three middle school language arts teachers designed it for several ninth-grade classes studying different genres of literature. In this section, we describe how individual learning episodes based on the same CLD unfolded for one teaching team. We will revisit this same team in the last chapter.

Ellen, Gail, and Sue had met to design a constructivist learning episode that would introduce the elements of fairy tales to their ninth-grade classes. For homework, they asked their classes to write essays about personal experiences with fairy tales. The next day, each teacher opened class by describing her own experiences with fairy tales. Ellen related the story of her Irish grandfather, who had told her about the "little people" and made them seem so real that she would look for them in likely hiding places. Her class also offered their personal experiences with fairy tales. Next she asked her class to arrange themselves in groups of four and had each group list the common elements in fairy tales and develop a definition of what made a fairy tale. Then each group wrote their list and definitions on a transparency, presented it to their classmates, and debriefed their thinking with Ellen.

In another classroom, Gail had her groups of four share their personal experiences with fairy tales and collect large chart paper, markers, and tape. Then she asked them to develop their own definitions of a fairy tale and to identify the common elements in fairy tales. Her class met for about 15 minutes of discussion while Gail moved among the groups and answered their questions or asked clarifying questions. She directed them to tape their charts to the wall and to present their definitions and common elements to their peers. Gail invited her class to discuss their choices and their rationale for each choice.

In a third classroom, Sue first told a story about how she had enjoyed listening to fairy tales when she was a small child. She asked her class what they remembered about fairy tales as listeners, readers, or storytellers. She had them meet in writer's workshop groups and asked them to compare their personal experiences with fairy tales, to make lists of common elements, and to agree on a definition of a fairy tale. After each group selected one person to report on its work, Sue led a discussion comparing the different elements and definitions.

Then each teacher handed out articles from their files by experts who defined fairy tales and listed their common elements. They asked

their classes to read the articles and then compare and contrast their own definitions and lists with the experts' thinking. After 10 minutes, they led a discussion about group observations and reflected on how the group definitions and elements were similar to those of the experts.

In each classroom, teachers asked their classes to answer two questions for the next day:

1. What would you add to your group's definition and list based on ideas from your peers and experts?

2. Which definition is more meaningful to you in preparing to write your own fairy tale?

At the end of the day, the teachers talked together about the how the learning episode had gone in each of their classrooms. They spoke about the level of student engagement and how collaborative thinking seemed so much more meaningful than when they had lectured about the elements of fairy tales. They identified students who seldom participated in the day-to-day activities of class yet were excited to offer ideas to their small group based on their own experiences with fairy tales. They talked about the importance of capturing the students' new knowledge in ways that documented their individual grasp of this area of literature. Ellen, Gail, and Sue had high hopes that their students were now prepared to write interesting fairy tales. Table I.2, Fairy Tales CLD, on the next page is the framework of elements the teachers used to design their constructivist learning episode.

Use this example of a complete CLD to analyze your definitions and explanations for each element. Then write your final revision in Learning Record I.E, Final Element Versions, which begins on page 21. You may see evidence of how your thinking evolved as you progressed through this chapter. Most teachers rearrange the order within the design as they consider different points or after test-driving the design with one group of students. Continue on to the final section of this chapter.

## REFLECTION SECTION: PRECEDENTS FOR CONSTRUCTIVIST LEARNING DESIGN

Renowned educators such as John Dewey, Maria Montessori, Paulo Freire, Eleanor Duckworth, Theodore Sizer, and Maxine Greene have advocated for similar elements within educational design. Teachers worldwide are heeding their advice to think differently about designing for learning rather than planning for teaching. None of these ideas is new—rather,

**Table I.2**    Fairy Tales CLD

| **Level:** | Middle School |
|---|---|
| **Subject** | Language Arts |
| **Title:** | Fairy Tales |
| **Designers**: | Ellen, Gail, Sue |

| | |
|---|---|
| **Situation**<br>*50 minutes* | The purpose of this Situation is to engage students in analyzing fairy tales so they develop an understanding of core elements and common themes that define this area of literature. Students will consider their previous experience with fairy tales, develop their definition of a fairy tale, and identify a list of common elements that are found in fairy tales.  Students will assess their learning by comparing their definitions and characteristics against experts. |
| **Groups**<br>*5 minutes* | Students will put themselves into groups of three or four. The students will be given large sheets of chart paper and markers to write their group definition of fairy tales and lists of common elements found in fairy tales and tape to put them up on the white board for the exhibit. Copies of articles by experts defining fairy tales and listing common characteristics will be distributed to individual students following the exhibit.  Desks will be turned toward each other in groups of four. |
| **Bridge**<br>*10 minutes* | The teacher will describe personal experiences with fairy tales and ask students to read what they wrote for homework the previous day about their personal memories of fairy tales. |
| **Task**<br>*15 minutes* | Students will organize into groups and get paper, markers, and tape. They will develop their definition of a fairy tale and will list common characteristics of fairy tales. Teacher questions: What were your previous experiences with fairy tales? How would you define a fairy tale? What are common characteristics in fairy tales? How do your definitions compare to experts'? Were your definitions or lists as precise? After seeing and reading others what would you add to your own definition or list? Which definition was more meaningful to you and would be more helpful in writing your own fairy tale? Why are we studying fairy tales? Where did fairy tales come from? What are fairy tales from other cultures? |
| **Exhibit**<br>*10 minutes* | Student groups will tape the chart paper with definitions and lists of common elements on the white board and present their thinking to the rest of the class. |
| **Reflection**<br>*10 minutes* | Students will read the articles and discuss the comparisons and contrasts with their own definitions and lists. Then they will write about what they would add to their definitions or lists from other groups or from the article. Students will describe why their own definition or the expert's definition was more meaningful to them as they think about writing their own fairy tale. |

**Learning Record I.E**   Final Element Versions

Situation definition and order explanation:

Groups definition and order explanation:

Bridge definition and order explanation:

| **Learning Record I.E** | (Continued) |
|---|---|

Task definition and order explanation:




Exhibit definition and order explanation:




Reflection definition and order explanation:

CLD organizes the thinking of many scholars of teaching into a framework that is sequenced and accessible.

In addition to the writing of these scholars, researchers working directly with schools have identified very similar patterns of learning design. Several excellent examples of how constructivist processes have been used to frame learning episodes are available from the Annenberg Foundation videos on teaching math in North America (Harvard-Smithsonian Center, 1987) or the TIMSS videos of Japanese and German classrooms (NCES, 1998). These vides documentation of international teaching address the importance of designing for learning that leads to an agreed-upon standard of performance. Some argue that learning episodes designed to meet national standards or curriculum outcomes can't really be constructivist. However, the concepts, processes, or attitudes selected as the topics of learning episodes are more powerful if teachers and students know what is expected. Teachers have always been challenged to design educational experiences that support learning at a high level. Standardized tests do not always measure this kind of deep, conceptual learning, but competent students should be able to demonstrate learning on both standardized and comprehensive assessments. Progressive educators often argue about the limitations of standardized testing, but their own children are coached to succeed in any kind of assessment. Educators must take responsibility for ensuring that all students, not only those from privileged backgrounds, can meet contemporary international standards required of a global education in this new millennium.

A brief history of modern lesson planning often begins with the work of Ralph Tyler's (1949) "rationale" or the underlying reason for shaping curriculum. His thinking was complex, illuminating the need for a grounding philosophy and matching processes required to educate. He is best remembered for his ideas about measurable objectives. Tyler believed that teachers cannot teach effectively unless the curriculum is well-defined and learning objectives are measurable.

Robert Gagné (1985) also described the difference between education needed to learn simple tasks and education required to learn complex tasks. He suggested that teaching should be structured to involve problem solving and to ensure higher-level understanding. Gagné specifies nine relevant "instructional events" that vary according to the specific content and the expected outcome:

1. Gaining attention

2. Telling learners the learning outcome

3. Stimulating recall of prior learning

4. Presenting the stimulus

5. Providing learning guidance

6. Eliciting performance

7. Providing feedback

8. Assessing performance

9. Enhancing retention and transfer to other contexts.

James Block (1971) offered the field of education "mastery learning." He believed that knowledge is acquired on a continuum from simple to complex and that instruction should be structured to reflect these levels of knowledge. He collaborated with Bloom and others and used his hierarchy of educational objectives with "knowledge" at the bottom of the ladder, representing facts and tables, and "synthesis" at the top, representing the most complex action by the learner. Such "instructional programming" frameworks emerged from an era that Case (1996) called the "cognitive revolution." This philosophy suggests that teaching behaviors and student learning can be structured and measured, from the most simple to the most complex.

In contrast to these precedents, constructivist learning theory focuses on the development of individual self-meaning, group social meaning, class shared meaning, and the public standard meaning in the cultural construction of knowledge. In this philosophical framework, teaching becomes a process of surfacing prior knowledge, actively engaging students in new learning, and connecting the two for as many students as possible.

Now reflect on your thinking and learning as you wrote your definitions for the six CLD elements (Situation, Groups, Bridge, Task, Exhibit, and Reflection) and your explanations for the order of CLD elements. Revisit your answers to the three CLD key questions introduced at the beginning of this chapter:

1. What are your students expected to learn?

2. Where are your students now in their learning?

3. How will students make meaning about what they are expected to learn?

Reviewing your answers should remind you of the feelings thoughts in your spirit, the images thoughts in your imagination, and the languages thoughts in your internal dialogue. Please describe these thoughts in Learning Record I.F, Thoughts on CLD, on the next page.

| **Learning Record I.F** | Thoughts on CLD |
| --- | --- |

As you were answering the three key questions about CLD,

Describe the feelings thoughts in your spirit.

Describe the images thoughts in your imagination.

Describe the languages thoughts in your internal dialogue.

## CONCLUDING REMARKS: WHERE DO WE STAND?

We position ourselves on three related continuums:

1. Instructional design

2. Constructivist learning

3. Educational assessment

The continuum of instructional design includes the macro-level planning of a curriculum or course, the mid-level planning of units or themes, and the micro-level planning of one class or lesson. The last category focuses on thinking about how to learn a single topic or idea in one class period or lesson, referred to as a *learning episode*. Older educational theory, derived from military experience, arranged lessons in 50-minute-long configurations with a 10-minute break between each lesson. The notion reflects a belief that learners and teachers do better if they have a short break in the class. Current high school classes still run 45–90 minutes, depending on single- or block-period scheduling. Some modern fitness theory says that workouts should last only 30 minutes rather than 90 minutes because both interest and endurance begin to wane shortly after half an hour. Many of the example CLDs reflect short periods of about 10 or 20 minutes to engage students as they think together to accomplish a Task and then share their thinking and reflect on what they have learned. The balance of the episode can take another 20 minutes or a few hours. Pacing engagement is an important part of creating the learning environment, so the design keeps things active and interesting for students.

The constructivist learning continuum extends from radical constructivists on one end to social constructivists on the other end. This perspective balances individually constructed personal meaning, collaboratively constructed social meaning developed in a group, and collectively constructed shared meaning. There are also culturally constructed standard meanings held by the larger community or society. Teachers need to relate these broader societal values to the shared meanings that are constructed collectively by a class. Personal meanings and social meanings are powerful for individuals and groups, but to be useful to others, these meanings must be communicated and understood. An important goal of education in a democracy is that students know that others have thought about these concepts before and have developed a cultural or standard meaning that has been derived and accepted over time. Broader societal practices that continue to marginalize certain races or cultures can be challenged and disrupted only if their history is fully examined.

The third continuum of educational assessment is polarized and political. One end is quantitative, with standardized test scores and grade point averages, while the other end is qualitative, with artifacts of student work or performance on open-ended problems available for teacher and parent analysis. We rely extensively on teacher observation and judgment about students, but we realize that these professional assessments must be documented and translated into easily understood frameworks to demonstrate accountability for those who are not as skilled at evaluating education. Most standardized, norm-referenced tests are designed to be easily administered and scored. Classroom criterion-referenced tests are usually easy to give and grade. Both of these approaches to testing are too simplistic to measure conceptual understanding. A more comprehensive approach that includes multiple measures and individual information about the learner is required to tailor teaching that supports real learning.

This chapter has walked you through a process of CLD for answering three key questions: What are your students expected to learn? Where are your students now in their learning? How will students make meaning about what they are expected to learn? Math and science teachers usually see this approach as relevant for their subjects. Language arts, social studies, and fine arts teachers have also used this process to design engaging learning episodes for their classes. Teachers from almost every grade level and subject area, including physical and special education, have used this CLD framework. We encourage you to use our six-step CLD process and see how your students respond.

The next six chapters discuss each element in the process of designing a CLD. The Situation, or the overarching theme that is central to learning design, is presented in Chapter 1. The other five elements follow in subsequent chapters. Readers walk through a process of writing each element as they draft, consider, answer questions, review characteristics and revise, finalize, and then reflect on their thinking and learning about each element. This interactive process is designed to familiarize you with the CLD process and let you practice enough to feel confident organizing for student learning using our CLD framework.