Center For Development of Interest in Learning (CDOIL. Inc.)

Content and Strategy Centered Teaching & Learning (CSCTL)

Professional Development - Spontaneous, Informal and Formal Knowledge Development Activities

Research behind CSCTL Carried Out by
Center for Development of Interest in Learning (CDOIL Inc.).
And
Professional Training in CSCTL by
New York Institute of Teachers' Education (NYITE)

Email addresses: enato@cdoil.org
Phone: (516) 506-5326

Reversed March 2026

Statement of Problem

Many teachers still focus exclusively on content-centered teaching; therefore, they still leave some children behind or allow them to fall through the cracks.

Many students struggle or fail because they engage in many activities that are unrelated to one another. The activities most children engage do not work together to promote their learning (knowledge development) efforts. Their informal are often unrelated to formal learning activities. For example, outside of school, children have informal experiences, but inside of school, they have formal which they represent as unrelated to informal experiences. Therefore, they engage their experiences with divided efforts. Student informal experiences range from simple to most complex; from responding to people who call their names to interacting cordially with siblings or friends. As they engage in these activities, they think and develop knowledge naturally and informally. They exercise their skills; they are mostly successful and they develop the skills and confidence in their informal activities. Therefore, they are encouraged to exercise the skills in other situations. During lessons, children still want to apply and exercise their informal skills and strategies, expecting success. However, their informal skills and strategies often fail them, and they struggle.

Content vs Strategy Centered Teaching

With content centered teaching, teachers do not structure or learn how to structure lessons to reinforce skills that students developed informally, when they engage activities unrelated to school learning. Teachers often focus exclusively on content teaching, emphasizing an aspect of learning involving synthetic thinking activities. In synthetic thinking (knowledge development) activities, a person produces and apply rules or strategies to synthesize and represent objects. When teachers focus exclusively on content teaching, they emphasize the application, but not the production of strategies. They engage students in learning how to accumulate and apply predigested concepts, but not in learning to create or produce knowledge (Dewey 1934). With content centered teaching, many teachers do not consider students' informal skills. They do not deliberately structure lessons to reflect and reinforce students' informal skills (enhance students' efforts). The result is that many children develop their skills independently and perform below their potentials.

Features of Thinking Reinforcing Its Activities

A person obtains knowledge of an object by thinking in phases. A person (1) perceives, (2) analyzes, and (3) synthesizes, (4) personalizes (thinks privately), and (5) publicizes (thinks publicly) to obtain knowledge of an object. These phases of thinking were identified by Kant (1717) and Wittgenstein (1927). Initially, a person thinks spontaneously; only the first three phases are involved. For example, if you turn your sight from one object to another, you represent another immediately. You perceive (1) perceives, (2) analyzes, and (3) synthesizes to represent another object, but they occurred spontaneously. One does not notice the time that one perceives, analyzes, or synthesizes the object. Also, a spontaneous object may be uncertain; therefore, one thinks deliberately to clarify it. In deliberate thinking, one simulates the initial phases of thinking activities. Here, however, knowledge development activity is informal, not guided by a teacher or defined rules. Informal knowledge development activities may be unsatisfactory; therefore we have schools and trained teachers so students learn effectively. Spontaneous, informal or formal thinking activities involve the same phases of activities; but, in school, teachers disregard phases of thinking and their functions during learning activities. In this synopsis, phases of thinking activities and their functions during spontaneous, informal and formal knowledge development activities are explained.

(1) SPONTANEOUS THINKING

Perceptive, Analytic and Synthetic thinking activities at the levels of spontaneous, informal, and formal thinking (knowledge development) activities differ. Specifically, activities that a person engages at the level of spontaneous differ from activities that a person engages at the level of informal or formal knowledge development activities. Also, outcomes of spontaneous, informal, or formal knowledge development activities differ. Significantly, one demonstrates (1) perceptive, (2) analytic, and (3) synthetic thinking activities at various levels of thinking (knowledge development) activities. In the paragraphs that follows, effects of (a) spontaneous, (b) informal, or (c) formal levels of thinking activities upon phases of [(1) perceptive, (2) analytic, and (3) synthetic] thinking activities are explained.

Perceptive and Spontaneous Thinking Activities

Perceptive thinking is filtering elements from occurrences through which a person obtains an appearance in consciousness. Perceptive thinking activities may be spontaneous, informal or formal. When perceptive thinking is spontaneous, a person does not decide whether to or not perceive an occurrence. The response to an occurrence is spontaneous. A result of perceptive thinking at the level of spontaneity is that a person obtains an appearance in consciousness. A requirement that helps to obtain an appearance in consciousness is that there be a connections between a person and an occurrences; and conditions that promote connections include being alive and capable of being affected by occurrences.

Analytic/Synthetic and Spontaneous Thinking Activities

Just like perceptive thinking activities, analytic and synthetic thinking activities at the level of spontaneity also contribute to representing an object. They have requirements that help them to operate effectively. However, at the level of spontaneous thinking, one does not decide whether to or not perceive an occurrence. A person response to an occurrence is spontaneously, and a person does not decide what and how to or not perceive an object once it occurred.

(2) INFORMAL THINKING ACTIVITIES

A person also demonstrates (1) Perceptive, (2) Analytic and (3) Synthetic thinking activities at the levels of informal thinking (knowledge development) activities. Activities that a person engages at the level of informal differ from activities that a person engages at the level of formal knowledge development activities. Outcomes of informal and formal knowledge development activities differ. In the paragraphs that follows, effects of informal and formal (levels of thinking activities) upon phases of thinking activities are explained.

Perceptive and Informal Thinking Activities

Perceptive thinking is filtering elements from occurrences to obtain an appearance in the mind. The purpose of an object perceptive thinking at the levels of informal thinking activities is to trigger informal thinking activities. In the informal level of thinking, an object of perception is obtained by discovery. In informal thinking, a person discovers a problem or task and responds to them consciously. A person's response is said to be informal because one respond to a task or problem consciously, but without adhering to established rules or processes. With perceptive thinking at the informal level of thinking, a person may be aware of his/her thinking activities, but not how to more effectively engage them and gain optimum advantage.

Analytic and Informal Thinking Activities

Analytic thinking is generating elements (features) characterizing an appearance. The purpose of the object (elements) of analytic thinking activities in the level of informal thinking activities is to generate the means to clarify an object of informal thinking activities. In the informal level of thinking, the elements through which a person clarifies an object is generated when a person engages in thinking about an object. In informal level of thinking, a person engages in analytic thinking by thinking about the object that must be clarified. Analytic thinking is informal when one respond to a task or problem consciously, but without adhering to established rules and/or processes. A person who thinks analytically at the level of informal thinking is aware of his/her thinking activities, but not adhering to established rules or procedures.

Synthetic and Informal Thinking Activities

Synthetic thinking is producing and applying rules (strategies and formulas) to simplify and resolve a problem. The purpose of the object (rule; strategies or formulas) of synthetic thinking activities in the level of informal thinking activities is to generate the means to clarify an object of informal thinking activities. In informal thinking, the means through which a person clarifies knowledge is by producing and applying rules of relationships among elements characterizing a problem. In informal thinking, a person thinks synthetically by showing relationships among aspects of feature of the problem. When synthetic thinking is informal, one respond to a task or problem consciously, but without adhering to established rules and/or processes. Here, a person is aware of his/her thinking activities, but does not adhere to established rules or procedures.

(3) FORMAL THINKING ACTIVITIES

With formal thinking activities, a person thinks deliberately. In deliberate thinking a person deliberately create a problem or task for practice and skills developments. Formal knowledge development activities activity is deliberate thinking and differs from other thinking activities. In both the spontaneous and informal thinking activities, students mostly fail to engage some phases of thinking activities mostly because they did not learn or know about them. During lesson activities, one may not have such an excuse. The purpose of formal learning activities is to develop skills in engaging all phases of thinking activities. Here, teachers engage students in learning about what and how they learn. In the following paragraphs, all phases of thinking, (1) perceptive, (2) analytic, and (3) synthetic, (4) private, and (5) public thinking activities at the level of formal leaning activities, are identified and explained.

1. Perceptive and Formal Thinking Activities

Perceptive thinking is filtering elements from occurrences to obtain an appearance in the mind. The purpose of perceptive thinking in the initial phases of thinking is to obtain an appearance and trigger thinking activities. A person obtain an appearance in conscious and begins thinking activities when there is a connection between a person and an occurrence. During lessons or at the level of formal knowledge development activities, a child engages deliberately in the first phases of lesson (knowledge development) activities seeking how to more effectively engage the lessons, modeling the initial phase of the perceptive thinking activities. To engage students effectively during lesson (at the level of formal knowledge development) activities, teachers model the perceptive phase of thinking activities. To trigger students' interest and engage them in the learning, teachers engage their students in learning to understand connections between lessons and their experiences or concerns.

The purpose of modeling perceptive thinking activities is to reproduce features of perceptive

activities that produce an appearance and trigger thinking activities. Just as an appearance in consciousness triggers engagement in thinking activities, the main factor that trigger student's interest in lessons is understanding connections between lessons and their experiences. When students understand a connection between a lesson and their experiences, question (problems) arise in their heads. To answer those questions, students engage the activities, and interests are said to be triggered. During lessons or formal learning activities, teachers trigger interest by (1) discussing activities of interest to students, (2) directly discussing connections between lessons and students' concern (or experiences), and so on.

2. Analytic and Formal Thinking Activities

Analytic thinking is generating elements or instances characterizing an appearance. The aim of Analytic thinking in the initial phases of thinking is to generate the means to identify various characteristics of an appearance. A person generates instances characterizing an appearance to facilitate the process of representing an object of appearance. During lessons or at the level of formal knowledge development activities, students engage deliberately in a phase of a lesson that correspond to the analytic thinking (knowledge development) activities seeking how to more effectively generate and apply resources to facilitate learning tasks. To engage in learning to generate resources and facilitate activities during lesson (formal knowledge development) activities, teachers model the analytic phase of thinking activities.

The aim of analytic thinking in the initial phases of thinking activities is to generate features characterizing an appearance. Just as generating the instances of or features characterizing an appearance, the factor that facilitate student's efforts in lessons is understanding, developing and applying resources. When students can generate resources for a lesson, they address and resolve difficult aspects of the lesson, and they facilitate their efforts. During lessons or formal learning activities, teachers engage students in learning to generate resources for a lesson and facilitate efforts by constantly repeating the activities of generating resources to address and resolve difficult aspects of the lesson.

3. Synthetic and Formal Thinking Activities

Synthetic thinking is generating elements or instances characterizing an appearance. The aim of synthetic thinking activities is to produces and apply rules (strategies or formulas) to determine relationships among instances characterizing an appearance and thus represent an object of an appearance (Allison, 2018). Just as a person produces and applies rules to represent an object of appearance, students seek to produce and apply rules (formulas or strategies) to understand a lesson. Dewey (1933) explained that otherwise students learn without understanding how the concepts relate to one another, and they learn predigested concepts. While student autonomy is important, students must learn to produce strategies and formulas for themselves; children

education must be built not just upon previous successes, achievements, and progress, but also how they were made Dewey (1933).

The aim of synthetic thinking in the initial phases of thinking activities is to produce and apply rules (strategies and formulas) and simplify tasks. Just as rules help to simplify features of an appearance and represent an object, in formal knowledge development activities or sustained interest phases of lessons, students seek to understand how features of tasks or problems relate to one another. Students seek to simplify lesson tasks or resolve problems. Factors that help students to simplify lessons tasks include producing and applying rules of concepts. Teachers engage students in learning to produce and apply rules (strategies and formulas) and simplify tasks by engaging them in learning to derive strategies and formulas) to simplify/understand tasks, but not by explaining instances or giving examples.

4. Private/Personal and Formal Thinking Activities

In private thinking activities, a person deliberately engage thinking activities seeking to more fully understand one's object. The aim of private thinking activities is to clarify and obtain a personal object/benefit (Wittgenstein, 1927). Just as a person must represent a personal object or benefit of an object to engage it, in formal knowledge development activities or personal interest phases of lessons, students seek to represent or understand personal benefits of lessons to engage the lesson or object privately. Otherwise students may briefly but lengthily engage lesson tasks. Private thinking activities or where a person develops unique capacities and skills corresponds to the personal interest phase of lessons. The personal interest phase of lessons is where students learns to develop their unique capacities and skills.

Students seek to represent or understand personal benefits of lesson tasks; students want to engage objects of lessons and learn more effectively. Factors that help students to understand personal benefits of lesson tasks is when teachers engage students in private and independent learning activities. During a lesson or formal learning activities, teachers engage students in learning to represent or understand personal benefits of lesson or tasks by modeling activities of the phases of private thinking, by engaging students in private or independent learning tasks. As students engage in personal and independent learning tasks, they develop their unique and personal views or understanding of lessons, they develop skills and capacities to reflect on lesson activities and on their experiences in general. Students learn more effective when they learn to independently develop their skills and capacities.

5. Public/shared and Formal Thinking Activities

Public thinking activities is where a person engages others in developing shared experiences or progress. The aim of public thinking is to develop a shared experience or an ideal environment (Wittgenstein, 1927). In public thinking activities, a person represent a shared object or benefit

that may be achieved through public thinking activities. Public thinking corresponds to shared interest phase of lessons or formal learning activities. In the shared interest phase of lessons students also have interest in engaging other to produce an ideal environment. Just as a person represent a shared object or benefit to engage in public thinking activities, students represent benefits of and seek to understand shared experiences and activities during lessons. Students seek benefits of engaging one another and of shared learning/lesson activities Otherwise students only work in isolation from and in suspicion of one another.

The focus in the shared interest phase of a lesson is to engage students in learning to create strong and effective shared activities. With the shared interest phase of lessons, students learn how to learn effectively from one another, create and sustain an ideal society (a democracy), and achieve enduring progress (Dewey, 1934). With activities in the shared interest phase of a lesson, students learn to interact well with one another and work well together. Factors that promote students' engagement with activities of the shared interest phase of lesson include (1) explaining to students activities and benefits of the shared learning activities. During lesson or formal learning activities, teachers encourage students in learning to identify and represent the shared benefits of lessons. As students engage in shared learning activities, they develop skills for shared activities and students learn more effectively.

CSCTL Training Activities

With **CSCTL Training Activities, teachers** engage in high-level discourses about students' interest, efforts, and learning needs. Teachers engage in learning about students and how CSCTL practices positively impact their students' achievements. Teachers learn to structure lessons to enhance students' efforts, and they develop increased skills for engaging and helping students in learning about and understanding (1) connections among their experiences, (2) resources relevant to their efforts, (3) strategies and formulas in their domains of interest, (4) their unique skills and capacities, and (5) shared learning activities and experience.

Learning activities in CSCTL are built around challenging tasks helping teachers to understand and effectively reflect student’s informal (thinking) knowledge development skills in formal lesson (learning) activities, and helping students to learn more effectively.

Expected Learning Achievements

- CSCTL Teachers learn that students develop their objects of interest through thinking. They learn that thinking and lessons are comparable knowledge development activities, and they structure lessons to reflect and enhance how students develop knowledge.
- Teachers learn about features of phases of informal thinking (knowledge development) activities that reinforce students' informal skill development efforts, and they develop

CSCTL lessons or learning tasks to reflect or simulate those activities.

- CSCTL teachers engage students in learning, explicitly emphasizing how content relate to strategy learning activities. They engage students in understanding the ways in which content differs from strategy learning activities.
- Teachers learn about features of the phases of lesson activities that are comparable to features of the phases of thinking activities, and they structure lessons to reflect phases of thinking (informal knowledge development) activities.

Participants Answer the Following Questions

Content and Strategy Teaching and Learning are complementary activities; they work together to enhance students learning achievements. Across the CSCTL training activities, teachers trained in CSCTL learn to explore and answer the following questions:

- What are content and strategy skills that students developed when teachers emphasize Content and Strategy Centered Teaching and Learning (CSCTL) practices? How do content differ from strategy skills?
- What are the elements of the phases of student's thinking (informal learning) activities that reinforce thinking activities, and how are the elements of thinking similar to or the same as elements that reinforce lesson (formal) activities?
- What do teachers need to know to implement CSCTL teaching and learning practices, and help students develop content and strategy learning skills? What do students do differently when they develop content and strategy skills?
- Do students develop substandard skills and strategies because of persistent and difficult experiences they are having or in-spite of them? How do students develop their learning skills and strategies in challenging situations?
- What are the fundamental elements of content knowledge, and how do they compare or relate to elements of strategy knowledge? What do students do when they demonstrate learning skills and strategies, when they can apply strategy and skills?
- Are challenging experiences based solely on the interpretation of the person having the experiences? What are the features of challenging experiences that conduce to positive growth, and when do adverse experiences promote positive growth?

Learn more about CSCTL.
Nyite.org
enato@nyite.org
nyited@gmail.com
516 506-5326