

THE Theory of Constraints **THINKING TOOLS In Classrooms and Schools**

Given the justifiable skepticism of teachers to still another improvement method, how has TOC for Education been able to impact the education of millions of children in seventeen countries on five continents within six years of its founding? It must be that educators find the TOC for Education methods exceptionally practical and powerful!

The TOC methods are developed through answering three simple questions.

What to change?

What to change to?

How to make the change?

What to change: What is the problem?

In spite of the volume of proposed changes--and the good intentions of those implementing these changes-- many teachers still note long standing problems such as:

- Students do not know how to solve their own problems
- Students are unable to control impulsive behavior
- Students memorize, rather than understand, what they are taught
- Students can not apply what they learn to authentic situations
- Many students do not see the value of education to make their lives better
- Students leave school before graduating
- Educational leaders are expected to meet the individual learning and behavior needs of all students without sufficient resources (time and money)

In summary, many students do not take responsibility for their own learning and behaviors and, in order to ensure results, teachers must intervene. At the same time, teachers know that they can not empower students to learn and think on their own if they intervene by assuming every responsibility for them.

Where can an effective solution be found to this dilemma?

To what to change: What is an effective solution?

What assumptions must we examine to successfully resolve this dilemma? Does the problem exist because educators are not earnestly trying? No. Does the problem exist because students are unwilling to be responsible? No. Does the problem exist because students lack needed tools? Perhaps.

An effective solution is not found in blaming the teachers or children for the problem! Teachers have good intentions and aspire to a good education system--for themselves or for their students. What is missing are effective means. What is needed are simple, concrete, and practical tools.

What if there were a powerful set of generic thinking and communication tools that would enable students of all ages, cultures and abilities to:

- Be able to analyze problems from all points of view
- Be able to think through consequences of their own actions so that they can make better choices on their own initiative
- Be able to understand what they learn through the logical connections embedded in the information so that they could derive, rather than, memorize answers
- Be able to apply what they learn in one subject to other subjects and everyday situations

- See relevance of what they learn to their every day lives
- Be able to set goals and think through a feasible plan to achieve them.

If students were able to take responsibility for their own learning and behaviors, would that outcome leave more resources available to meet the incredible demands on teachers' time? This will happen only if the means to the end can be accomplished within existing resource limitations. In other words, classroom teachers must have effective tools which not only can be taught through existing curriculum content but also in a way that enhances the achievement of mandated standards and benchmarks.

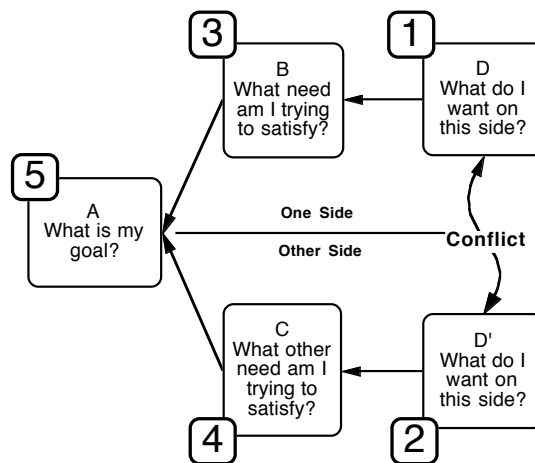
How to cause the change: Implementing the Solution

The TOC Thinking and Communication Tools for education can enhance students' abilities to take responsibility for their own learning and behaviors by enabling them to analyze problems, communicate clearly, accomplish goals and become life long learners. The TOC tools can be used to teach existing curriculum and life skills at the same time.

The specific tools to cause the change: The Evaporating Cloud, The Consequence Branch, and The Ambitious Target

The Evaporating Cloud: A Tool for Conflict, Choice and Decision Analysis

The Cloud is a TOC thinking tool that analyzes the details of a conflict in a fair and non provocative way by focusing on five questions. This process uses a generic diagram of 5 boxes connected by logic arrows. Each box answers a question to help clearly describe the situation under study. The numbers indicate the order in which the cloud is usually constructed: identify the conflict first with boxes one and two, identify the needs that each want is fulfilling with boxes three and four, and identify the common goal in box five.



Additional guided questions are provided for deeper analysis to reveal the underlying reasons or assumptions in the logical connections between the boxes. These assumptions sometimes are needed to provoke the thinking required to create simple and practical solutions.

The cloud is a structured and dynamic systematic thinking tool that enables people to analyze conflict whether it is in a textbook lesson, on the playground or within a school management team. Although this process is simple enough to be used by very young children, it is also profound enough to be used by those in school governance.

When students analyze curriculum content using the cloud, they also learn to think and communicate more effectively. They can learn curriculum content and a life skill at the same time.

Behavior Applications:

- Counseling
- Peer Mediation
- Classroom Management
- Life Management Skills
- Conflict Resolution among staff
- Parent Conferences

Applied to behavior, the cloud can be used to analyze internal conflicts in order to enable more responsible decisions/choices. The cloud can also be used to analyze interpersonal conflicts so that disputes can be peacefully resolved.

Benefits of using the Cloud in behavior situations:

- Enables understanding of problems from all points of view
- Enables more responsible decisions/choices that accommodate the needs of others
- Creates ownership of responsible solutions and commitment to their implementation
- Develops emotional understanding and empathy
- Improves clarity of language and focuses communication
- Turns the problem away from 'you against me' to 'you and me against the problem'
- Develops initiative to responsibly solve own problems
- Substantially improves relationships

Content Applications:

- Analysis of narrative text (oral or written)
- Analysis of informational text (oral or written)
- Development of communication skills(oral and written)

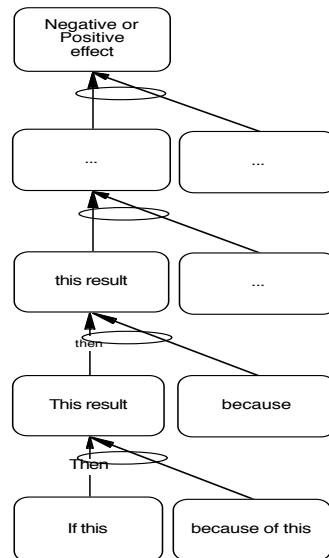
Applied to curriculum content, the cloud provides a scaffold to assist students to analyze conflicts, actions, and decisions in narrative and informational text in a way that deepens their understanding and enhances their ability to communicate what they have learned.

Benefits to students of using the cloud in content applications:

- Enables students to clearly and succinctly retell and remember key points of text
- Enhances ability to pull inferences from text
- Focuses thinking beyond a literal interpretation
- Enables students to understand deeper and broader perspectives of all sides of a problem/situation/issue.
- Relates existing curriculum to student daily lives
- Enables students to apply new knowledge to authentic situations
- Evokes classroom discussion that is more focused and meaningful
- Enables students to identify essential, yet less obvious details in text by surfacing assumptions underlying main ideas
- Enhances ability to improve existing solutions and create new ones.

The Consequence Branch: A Tool to analyze consequences in academic and life situations.

The Consequence Branch is a TOC thinking tool that analyzes relationships in information by using cause and effect logic. The information in the boxes is connected through "if, then" statements.



The Consequence Branch is a structured and dynamic systematic thinking tool that can be used by students of all ages as well as by those who lead them. When students analyze curriculum content using the Consequence Branch, they are also learning to think and communicate more effectively. They are learning curriculum content and a life skill at the same time.

Behavior Applications:

- Counseling
- Classroom Management
- Life Management Skills
- Parent Conferences

Applied to behavior, the Consequence Branch enables students to think through consequences of their actions. If students identify these relationships for themselves, they are much more likely to take corrective, responsible actions on their own. In so doing, not only do they gain confidence in their ability to solve their own problems but also, many times, they are able to prevent conflicts with others. As a result, the learning environment is significantly improved.

Benefits of students using the Branch in behavior situations:

- Enables students to understand why they should change behaviors
- Enables students to change behavior without feeling the need to demonstrate their independence
- Enables students to become more and more responsible for their own behaviors
- Develops the habit of 'thinking before acting'
- Develops students' academic skills of using cause and effect logic

Content Applications:

- Analysis of narrative text (oral or written)
- Analysis of informational text (oral or written)
- Development of communication skills(oral and written)

Applied to content, the Consequence Branch enables students to logically organize and explain information. Because they are able to understand content through the logical connections embedded in the information, students are more likely to remember what they are learning.

Benefits to students of using the Branch in content applications:

- Enables all students to meaningfully participate in lesson regardless of prior content knowledge
- Enables students to clearly and succinctly retell and remember key points of text
- Enhances ability to pull inferences from text
- Enables students to identify essential, yet less obvious details in text by surfacing assumptions underlying main ideas
- Focuses thinking beyond a literal interpretation
- Enables students to derive answers instead of memorize them.
- Enables students to resolve inconsistencies in logic to support a position
- Evokes classroom discussion that is more focused and meaningful

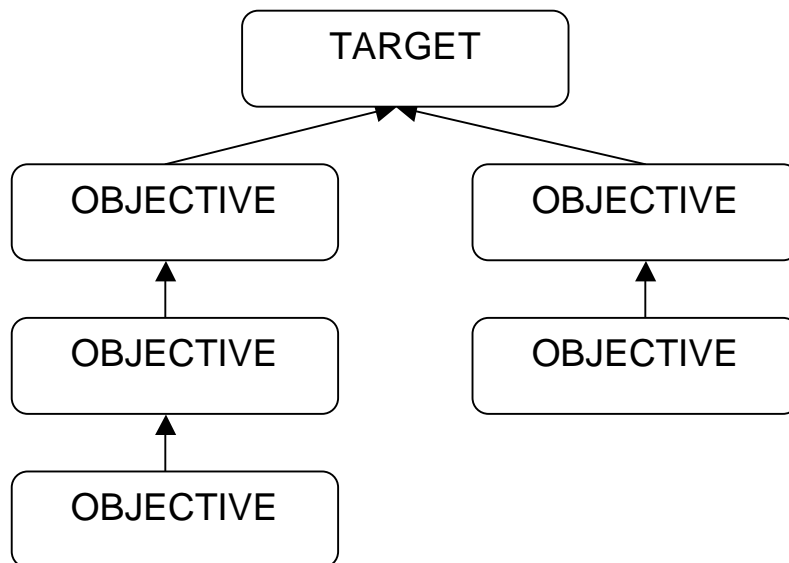
The Ambitious Target

A TOC thinking tool to analyze steps needed to accomplish goals.

The Ambitious Target (AT) is a TOC thinking tool that analyzes what is needed to achieve goals. After the desired goal or target is clearly stated, obstacles that prevent its achievement are identified. The next step is to think of the "intermediate objectives" that are needed to overcome these obstacles.

TARGET	
OBSTACLE	INTERMEDIATE OBJECTIVE

These intermediate objectives (stepping stones) are then sequenced into a map--a logical tree.



The Ambitious Target is a structured and dynamic systematic thinking tool that can be used to plan projects, address behavior problems and to analyze curriculum. Although this process is simple enough to be used with very small children, it is equally effective in ensuring success for those who plan and manage school and system-wide projects. When students analyze curriculum content using the Ambitious Target tool, they are also learning to think and communicate more effectively. They are learning curriculum content and a life skill at the same time.

APPLICATIONS TO STUDENT BEHAVIOR AND SCHOOL-WIDE PROJECTS

- Personal Goal Setting with students(Behavior and Academic)
- "Contracts" with students and/or classes to improve conduct or to complete academic work
- School Improvement Plans
- Planning school events

When applied to projects, the Ambitious Target (AT) enables individuals and groups to think through the logical steps needed to ensure success.

Benefits of using the Ambitious Target to improve behaviors and to plan school projects:

- Ensures the target itself is clearly understood
- Provides more focused and deeper understanding of what is needed to ensure success
- Improves clarity of communication (use of language)
- Provides concrete, written plan that is logical and easy to follow
- Evokes participation and commitment of all team members in group projects
- Ensures genuine collaboration among team members
- Eliminates non essential actions that waste time
- Fosters confidence and momentum needed to achieve a goal.

CURRICULUM APPLICATIONS:

- Analysis of narrative text
- Analysis of informational text
- Academic projects (group and individual)
- Development of communication skills (oral and written)
- Lesson Plans

Applied to curriculum content, the Ambitious Target enables students to analyze events and procedures in a way that deepens their understanding and their ability to apply what they learn to their everyday lives.

When teachers use the Ambitious Target with students to develop a plan to achieve curriculum objectives (standards and benchmarks) students are able to verbalize not only what they need to learn but also their own responsibilities in the learning process.

Benefits of using Ambitious Target in curriculum content:

- Deepens understanding of successes and failures in analyzing events and procedures
- Focuses thinking beyond a literal interpretation

- Enables students to predict potential obstacles in text or in projects and think through how to overcome them.
- Enables students to improve ideas that did not succeed and/or to create new ones.
- Enables students to logically sequence new knowledge.
- Enhances ability to identify essential, yet less obvious, details in text or academic projects by thinking through the reasons for actions.
- Enables focused and meaningful classroom discussion
- Enables students to logically plan a group or individual curriculum content project.