

## THE COMPACTING/ **INTEGRATING** OF THE CURRICULUM

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Implementation of Intensive core French (ICF) requires two major adjustments to the curriculum: a reorganization of the time table and a reorientation of the programme of studies for French. The following text addresses the reorganization (or compacting) of the curriculum. In order to ensure that all outcomes of the regular English curriculum are met without placing an undue burden of extra work on the students participating in ICF, considerable attention has been given to the compacting of the regular curriculum. The mathematics curriculum, maintained as achievement in this area, is of considerable concern in the school system; therefore, no reduction of the mathematics curriculum is proposed.

The compacting of the regular curriculum is one of the most important and original aspects of ICF. The regular curriculum is compacted in two ways: content is in some cases reduced; also the development of certain cognitive processes is encouraged in the French curriculum. Furthermore, the theory behind the compacting is slightly different for the compacting of English language arts, and for the compacting of other subjects areas (such as social studies, science, personal development and health education).

### **The compacting of English language arts**

As far as **learning processes** are concerned, there are three different and complimentary theoretical bases: Cummins' interdependence of language hypothesis, Vygotsky's conception of the relationship between instruction and cognitive development (and the neo-piagetian's explanation of the relationship between social and cognitive development).

In order to explain and justify the compacting of the language arts program of study, Cummin's hypothesis on interdependence of languages (the "dual-iceberg" theory) is crucial. Indeed, according to Cummins, differences between two languages such as English and French appear to be very great: structures, vocabulary and sound systems are different. However, at a deeper level, there is what Cummins calls a common underlying proficiency (CUP), that is to say, that at this level, the process of learning two different languages seems to rely on common or identical stages. Cognitive processes involved in using a language are the same for English and French; also the cognitive processes developed through language such as analogy, can be used through any language (see Figure 1).

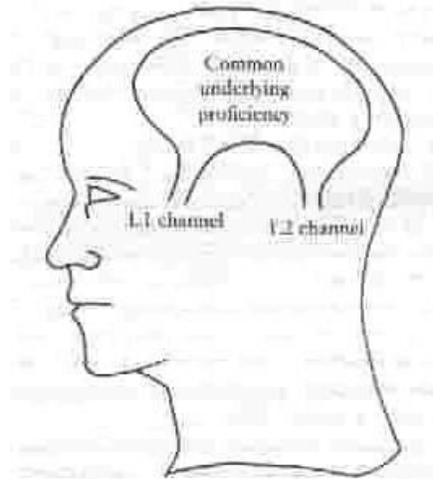


Figure 1 – Common underlying proficiency model (CUP) of bilingual proficiency (Cummins and Swain, 1986, p. 83)

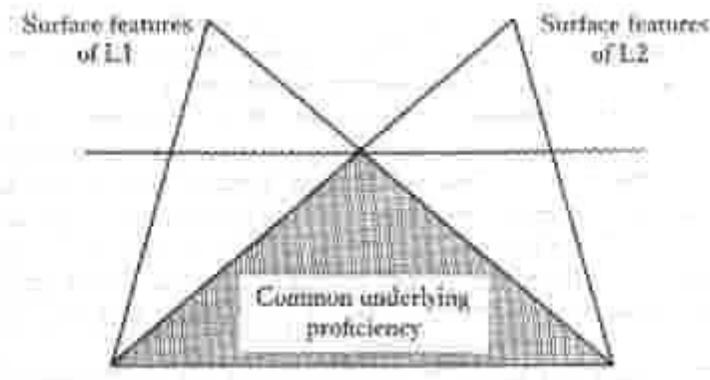


Figure 2 - Identical underlying processes between L1 and L2 (iceberg theory) (Cummins and Swain, 1986, p. 83)

As mentioned by Swain (in Cummins et Swain, 1986), when students learn to use the second language, they also enhance their abilities to engage in the cognitive processes associated with language, such as sequencing, inferencing and so forth. These processes are transdisciplinary. The learner is engaged in developing intellectual capacities such as sequencing (*Le matin, je me lève à 7 heures, je me lave et puis je mange. Après, je me brosse les dents et je me prépare pour aller à l'école*), inferencing, problem solving (*La maison où le train arrive* instead of *La gare*), hypothesis testing (*Je suis 11 ans* instead of *J'ai 11 ans*), making logical relations (*Si j'arrive avant 6 heures, je te téléphone*), analysing (making the distinction between a noun and a verb), making abstractions (*Il ne faut pas gaspiller le papier pour sauver les forêts*), making generalizations (*Un petit ballon – Une voiture rouge* compared to *Un gros cadeau – Un chandail jaune*), etc.

It is also interesting to note that Cummins was particularly interested in using his hypothesis in explaining the transfer from L1 to L2. However, since there is

“interdependence”, this hypothesis suggests that there may also be some transfer the other way around, from L2 to L1. For instance, when a student, for the first time, learns how to write a paragraph in his/her second language (in French, for instance), it is not necessary for this student to re-learn the same process when time comes to write a paragraph in L1 (in English). In such a case, it is sufficient for the student to have the opportunity to “apply” the process (originally learned through L2) to L1. In order for the transfer to occur, however, the student has to use the language. This process is also true for all of the cognitive processes associated with language use, such as generalizing, synthesizing, etc.

Based on this hypothesis, it seemed possible to “compress” the language arts curriculum during the first five months of the academic year, from September to the end of January. During the last five months of the year, students receive their regular number of hours devoted to English. In theory, all the language arts outcomes will be achieved, in spite of a considerable reduction in the number of hours normally spent on the learning of English. On the average, in an entire academic year the time devoted to English can be cut in half: the students only have to “apply” to a similar subject (English) all the learning processes that have been already developed through the learning of the L2 (French).

If we examine the New Brunswick grade 5 “Learning Outcomes” for English Language Arts, we realize that practically all the *processes* involved in the learning of this subject can be firstly developed in the learning of French as a second language. For instance, “Students will be expected to (A1) contribute thoughts, ideas, and experiences to discussions, and ask questions to clarify their ideas and those of their peers”; or (B1) “contribute to and respond constructively in conversation, small-group and whole-group discussion, recognizing their roles and responsibilities as speakers and listeners”; or (C1) “demonstrate an awareness of the needs, rights, and feelings of others by listening attentively and speaking in a manner appropriate to the situation”; or (D1) “select, independently, texts appropriate to their interests and learning needs”, and so on.

Now, if we examine the Newfoundland and Labrador grade 6 “Learning Outcomes” for English language arts, we find a similar situation. For instance, students are expected to

- (1.1) “extend and reflect on their thoughts, ideas and questions and compare their ideas with those of peers and others”
- (2.1) “contribute to and respond constructively in small and whole group discussions”
- (3.1) “demonstrate sensitivity to the particular speaking and listening situation (e.g., informal versus formal speaking situations)”
- (4.1) “select, independently, from a variety of sources, texts that are appropriate to their range of interests and learning needs”
- (5.1) “answer their own questions and those of others by selecting relevant information from a variety of texts”
- (6.1) “develop a personal response to a range of texts by making connections among and within texts”, and so on.

Secondly, as far as the **content** is concerned, it seems possible to reduce the time devoted to the language arts to achieve the grade 6 outcomes recommended by the Department of Education of Newfoundland and Labrador. In order to meet the English language arts outcomes and enhance English language development, an independent home reading program, monitored by the teacher, has been incorporated into the first semester. During this period students undertake to read several novels, and to complete the requisite book reports: students are introduced to the plot, the characterization, the suspense and descriptive language of novels. Other tasks common to the English language arts classes in the province, such as journal writing, have also been maintained during the first semester. As a result, due to these modifications there was no reduction in English language skill development.

It is *as if* part of the time devoted to the learning of the language arts was used for the learning of the process of learning itself, and part of the time for the learning of the content, that is, what makes two languages different (the specific vocabulary, structures, pronunciation, discourse, etc.). For instance, in Newfoundland and Labrador grade 6 “Curriculum Outcomes”, for English language arts, students are expected to

(4.4) “use and integrate the pragmatic, semantic, syntactic and graphophonic cueing systems (e.g., context clues; structural analysis to identify roots, prefixes and suffixes; text structures) and a variety of strategies to construct meaning (e.g., rereading, using a dictionary to determine word meaning)”

(9.2) “apply specific features, structures, and patterns of a wide variety of forms to create texts”

(10.2) “use the conventions of written languages in final products:

- spell most words correctly
- demonstrate appropriate use of punctuation
- capitalization and paragraphing
- show a control of syntax
- use references while editing (e.g., dictionaries, classroom charts, electronic spell checks, thesauri, other writers)”

It is this part of the curriculum outcomes that are reached in the second five months.

For New Brunswick, we find a similar situation: in the grade 5 “Curriculum Outcomes”, for English language arts, “Students will be expected to (J1)

- demonstrate an increasing understanding of the conventions of written language in final products
- use basic spelling rules and show an understanding of irregularities
- use appropriate syntax in final product.”

Again, it is this part of the curriculum outcomes that are reached in the second five months.

## The compacting of other subject areas: common learning outcomes

In order to understand the compacting of the other subjects, an integrated approach to curriculum must be adopted. Indeed, according to Vygotsky, the compartmentalization of the subject areas into science, social studies, health education, etc. does not coincide with the unitary processes of learning:

*Instruction has its own sequences and organization, it follows a curriculum and a timetable, and its rules cannot be expected to coincide with the inner laws of the developmental processes it calls to life. [...] We found that intellectual development [...] is not compartmentalized according to topics of instruction. Its course is much more unitary, and the different school subjects interact in contributing to it (Vygotsky, 1962 : 101-102).*

In other words, there is a sort of mismatch between the way the subjects in schools are compartmentalized and the way these subjects are processed in the student's mind. Subjects are distributed, in a school schedule, *as if* they were *all* processed differently. The unity between all the different subjects has to be built by all students individually (see Figure 3).

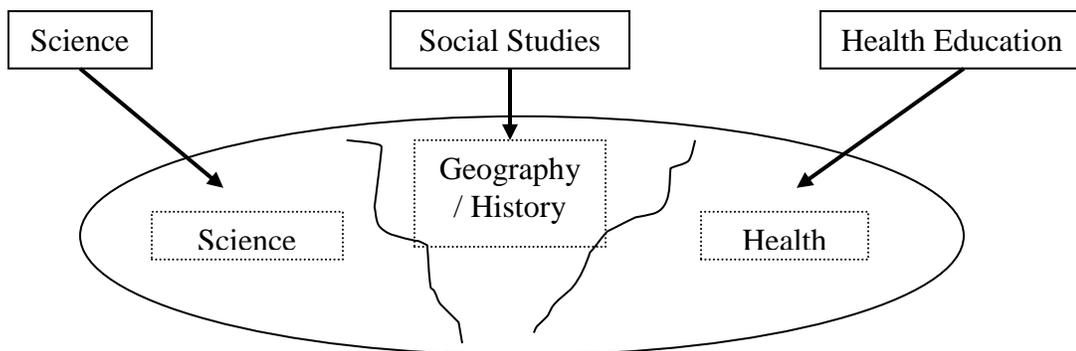


Figure 3 – General (naïve) simplistic view of the relationship between school subject areas and student learning

In ICF, this way of functioning, which does not seem to rely on the way cognitive development of the student occurs in reality, is questioned. Again, if we examine the learning *process*, there seem to be many processes that are common to different subjects. In our research project, we identified a few processes that are common to French and to other subjects, such as social studies, science, personal development, religion or health education (see Figure 4).

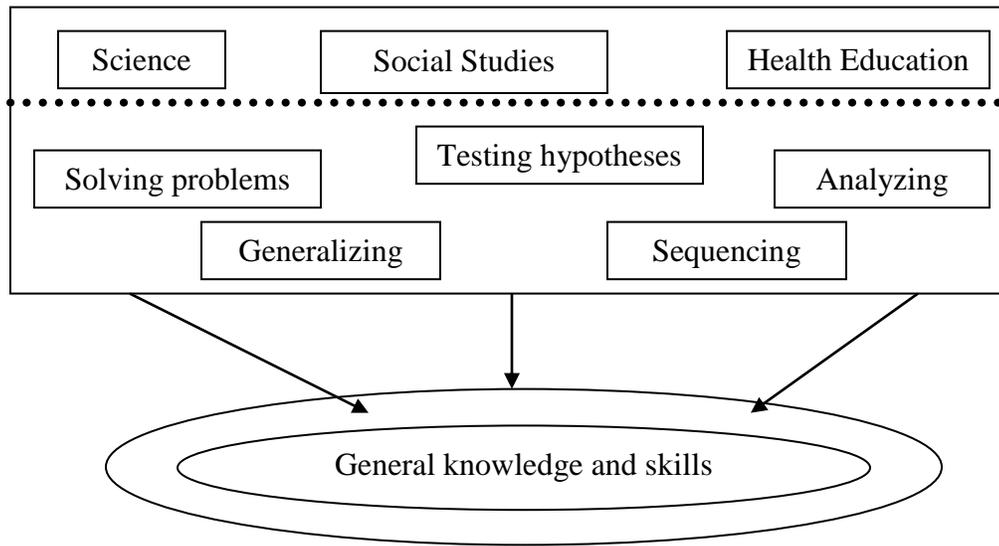


Figure 4 – Examples of cognitive underlying processes common to the learning of different subject-matter areas

In general, the compacting of subjects means some reduction in teaching time for the subjects compacted. However, based on the fact that cognitive processes are not specific to one subject, such as hypothesis testing to science, some subjects can be compacted without any loss to the student. Therefore, if we compare the New Brunswick grade 5 level learning outcomes for different subject-matter such as health education, social studies, science and personal development, we can identify many common goals (the content is obviously specific to every subject-matter area). Here are a few examples:

**DESCRIBE**

- how the human immune system acts in the body’s defense (Health)
- the structure of the feudal system (Social Studies)
- the structure and function of the major organs (respiratory system, nervous )... (Science)
- the emphatic responses in a variety of situations (Pers. Dev.)

**IDENTIFY**

- the consequences of smoking (Health)
- selected medieval societies (Social Studies)
- properties that allow materials to be distinguished from one another (Science)
- properties problems families might have (Pers. Dev.)

## COMPARE

- stimulants and depressants (Health)
- [...] (Social Studies)
- the force needed to lift a load manually with the effort required to lift it using a simple machine (Science)
- [...] (Pers. Dev.)

Below is a table showing some similarities among some learning goals in different subject areas.

Tableau 1 – Common learning outcomes

	Health	Social Studies	Science	Personal development
Describe	X	X	X	X
Identify	X	X	X	X
Compare	X	[...]	X	[...]

If we compare these goals with some of the goals recommended in the core French program or in the ICF program, we can find some similarities. For instance:

**DESCRIBE** ways in which the environment can be protected

**IDENTIFY** endangered species & their natural habitats

**COMPARE** other provinces with your province (location/size, etc.).

If we examine the underlying cognitive processes used by students in order to achieve these learning outcomes, we also realize they are similar. For instance, in order to DESCRIBE, one has to analyze, identify different components to be synthesized; in order to IDENTIFY, one has to analyze, see relationships and make abstractions; in order to COMPARE, one has to analyze, recognize similarities and differences, and generalize; (in order to EXPLAIN, one has to make causal abstract links, and so on). As seen previously, these concepts correspond to the cognitive processes common to the learning of different subject areas.

Therefore, due to the similarities of some cognitive processes in the learning of different school subjects, it seems possible to compress certain parts of the curriculum, that is, reduce the time normally devoted to these subjects, without any negative effect on the achievement of the learning outcomes. In other words, we believe it is not necessary for the student to continually relearn how to develop some cognitive processes, when studying a different subject-matter, *as if* all cognitive processes involved in the learning of different subjects were totally different. Thus, we can avoid some repetition or unnecessary relearning.

For instance, when a student says, wrongly, *Je suis 10 ans*, the student is testing a hypothesis that the French sentence uses exactly the same verb form as the English structure (implicitly – the student is not always aware of all these processes). When learning social studies, science, personal development, religion or health education, there are many situations where the student also has to test some hypotheses. For instance, in attempting “to explain the role that supply and demand plays in the Canadian economy” (which is one of the grade 5 outcomes in social studies in New Brunswick), the student has to test some hypotheses about supply and demand that could be right or wrong; the process is the same. The content is obviously different (the role of supply and demand) and, consequently, has to be learned separately. When, in health education, the student attempts “to explain the interrelationship of food intake and energy output and the need to keep them in balance”, the content is specific but the process of testing hypotheses in order to give some explanation is similar to the one developed in the learning of the second language.

Not only cognitive processes, but also some learning of content occur although the content outcomes are not tested. In order to learn a language, one must talk about something. The “something” chosen to talk about is related to topics to be studied later in specific subject areas. Talking about the species develops some passive knowledge which allows students to learn the content presented in that subject area more quickly in the second half of the year.

As far as the content is concerned, if we examine carefully the learning outcomes at a specific grade, we realize that some content may be shared. For instance, in science, in Newfoundland and Labrador, at the grade 6 level, the student has to :

- compare different rocks and minerals from their local area with those from other places;
- identify problems and work cooperatively with other students to refine their design of a model of an organ or system (body system);
- evaluate the usefulness of different information sources, such as advertisements, magazines, and tabloids, in answering questions about health and diet;
- estimate weather measurements for various times of the day, week, or for weather systems.

There is some type of overlapping possible here with some content covered in the study of French as a second language: it is quite probable that the students will have to talk about weather phenomena, or rocks or minerals (in one of their project-type activity). Without being formally tested in their ICF course in order to see if they actually reached such an outcome, it is possible that when they cover the healthy body, rocks and mineral or environmental issues, in science, the students will already know quite a bit on the content being taught. As a result, the students learn the content specific to the subject area more quickly, due to the fact they already have a passive knowledge of the content.

In sum, the general competencies that can be developed by the study of certain other subject areas, such as problem-solving or hypothesis testing in science or analyzing and synthesizing information in social studies, are developed by the activities and tasks accomplished in the context of the themes explored and the projects undertaken in ICF. As a result, a small reduction in the amount of time spent on these subjects in grade 6 does not create a situation where substantial learning loss is likely to occur. The transdisciplinary competencies developed are available for use in L1. There is a certain amount of general knowledge which is also learned because language use has to be contextualized. For example, in a unit on travel, students could learn the provinces of Canada and their capitals, as well as some similar information for other countries; these topics are normally studied in the social studies curriculum. While it is to be remembered that the attainment of academic content goals is not envisaged in using these topics, their introduction does enable teachers to achieve the academic goals more quickly once the topic is reintroduced in the second semester within the curriculum of the specific area. The passive knowledge learned in French contributes to general knowledge development in L1.

This explains why and how, in order to achieve the intensity required for French, the program of study can be reorganized (compacted). The theoretical bases behind the ICF questions the ways different school subjects are compartmentalized into small bits and pieces, without taking into consideration the student learning process. During the last decades, theories of learning have made some progress, even if many areas still remain obscure; however, the model behind the distribution of a curriculum into small pieces or blocks of time has not considerably changed for many decades; it has not followed a parallel development similar to the evolution of social and cognitive theories of development.

In general, we can say that the compacting of a few subjects means some reduction in teaching time for the subjects compacted. However, based on the fact that some processes have already been developed through French and that the students already possess some passive knowledge of the content areas already talked about in French, the curriculum outcomes for the other subject areas can be attained more quickly. The compacting of the curriculum requires a careful examination of the curriculum outcomes recommended by a Department of Education in order to select areas that can be integrated into the ICF enriched curriculum.