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WHAT WORKS? *Research into Practice*

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Research Monograph # 28

How can teachers meet accountability mandates and ensure an engaging curriculum?

Integrated Curriculum

Increasing relevance while maintaining accountability

By Dr. Susan M. Drake & Joanne Reid
Brock University

Research Tells Us

- Core crossdisciplinary concepts and higher-order skills are taught by connecting multiple subjects to a unifying theme or issue.
- Students in integrated programs demonstrate academic performance equal to, or better than, students in discipline-based programs.
- Benefits include greater student engagement, increased teacher collaboration and professional growth and more opportunities to differentiate learning, all especially helpful for at-risk students.
- Creating integrated curriculum is not without challenges, often requiring a fundamental change in practice and beliefs.

DR. SUSAN DRAKE is a professor in the Faculty of Education at Brock University. She has taught at all levels of education. Her research interest is educational reform and particularly innovative curriculum and assessment.

JOANNE REID is a doctoral student at Brock University. She has wide experience in education from the school to the provincial level.

In addition to literacy and numeracy, teachers need to address other initiatives such as environmental education, character education and the new literacies (media, critical and technological). With so many curriculum expectations to cover and assess, it's not surprising that teachers sometimes feel overwhelmed.

How can teachers do it all? One way to address these multiple expectations is by integrating the curriculum. Integrated curriculum teaches core concepts and skills by connecting multiple subject areas to a unifying theme or issue.

Integrated curriculum is not new; its use in Ontario dates back as far as 1937.[1] Previous eras of integrated curriculum – with its holistic, constructivist, child-centred approach to education – ended with shifts to a standardized, subject-specific, back-to-basics curriculum. These shifts represent changing priorities: relevance and accountability.

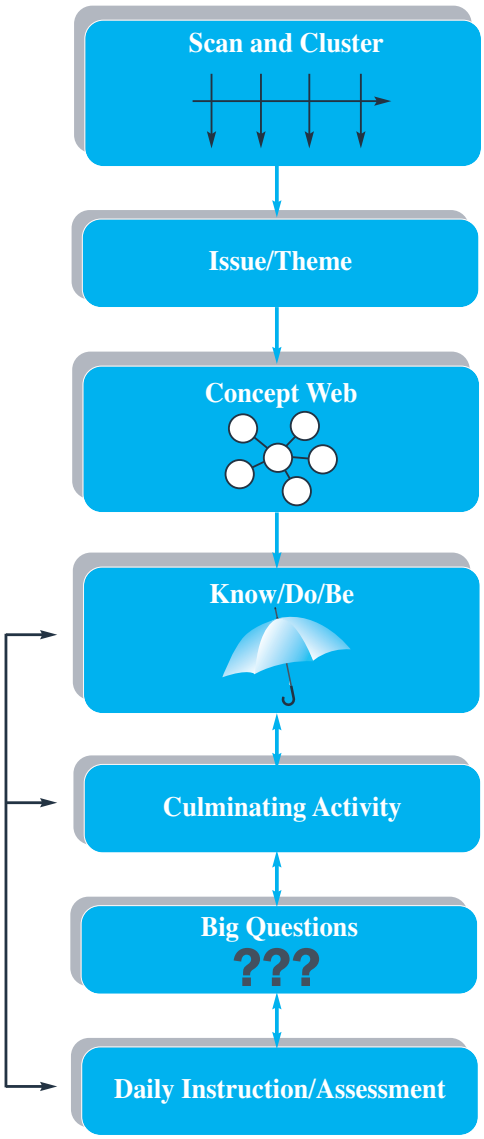
While Ontario's current accountability focus has raised literacy and numeracy levels, questions about relevance are resurfacing. One way to increase relevance while maintaining accountability is to adopt an integrated approach.

Research has consistently shown that students in integrated programs demonstrate academic performance equal to, or better than, students in discipline-based programs. In addition, students are more engaged in school, and less prone to attendance and behaviour problems.[2,3,4]

How Do Teachers Plan?

Usually, planning for integrated curriculum is a collaborative venture. Educators use a backward design approach.[5] They begin by exploring expectations to determine what is most important to *know*, *do* and *be*, and focus on how to assess student outcomes. Designing appropriate instructional activities is the

Designing an Integrated Curriculum



last step. Fogarty,[6] Drake[7] and Erickson[8] suggest different approaches. Fogarty offers a continuum of ten approaches to integration ranging from establishing connections within one subject area, to establishing extensive connections across subject areas. Drake and Erickson offer concept-based approaches to create units.

An Ontario Case Study

Elementary schools in the Bluewater District School Board recently explored integrated curriculum as an efficient way to create a relevant and accountable curriculum. Teachers learned and applied a process of interdisciplinary planning, teaching and assessing. Some integrated just math and literacy, while others integrated several subjects. Although the district focused on the intermediate grades, we believe the lessons learned apply from K to 12.

A Step-by-Step Method of Planning an Integrated Unit

The teachers followed the steps in Drake's model,[3,7,9] noting that student input into this process increased engagement.

1. Determine what learning is most important by scanning the relevant *Ontario Curriculum* documents for recurring ideas.[10] Vertically scan subject areas' expectations, two grades below and one above the target grade. Horizontally scan expectations across subjects of the target grade. The similarities represent what is most important for students to know (core concepts or Big Ideas such as systems and structures, sustainability and interdependence), do (21st century skills such as research and critical thinking) and be (ethical issues in the context of self and community). Cluster expectations into meaningful chunks that describe the conceptual content (**Know**), skills (**Do**) and attitudes/beliefs (**Be**), the KDB.
2. Choose an appropriate issue or theme to study.
3. Brainstorm possible activities based on expectations. Create a concept web as an organizing graphic.
4. Finalize the KDB to act as an umbrella for the unit.
5. Create a rich assessment task for a culminating activity. Align this task with the KDB and curriculum expectations. A challenging but relevant assessment task – one that involves more than one subject and allows students to demonstrate that they have met expectations and achieved the KDB – is key to creating a meaningful curriculum.
6. Create two to three Big Questions. Organize daily instruction around them.

TIPS FROM FRONT RUNNERS

Start small. Build on your experiences.

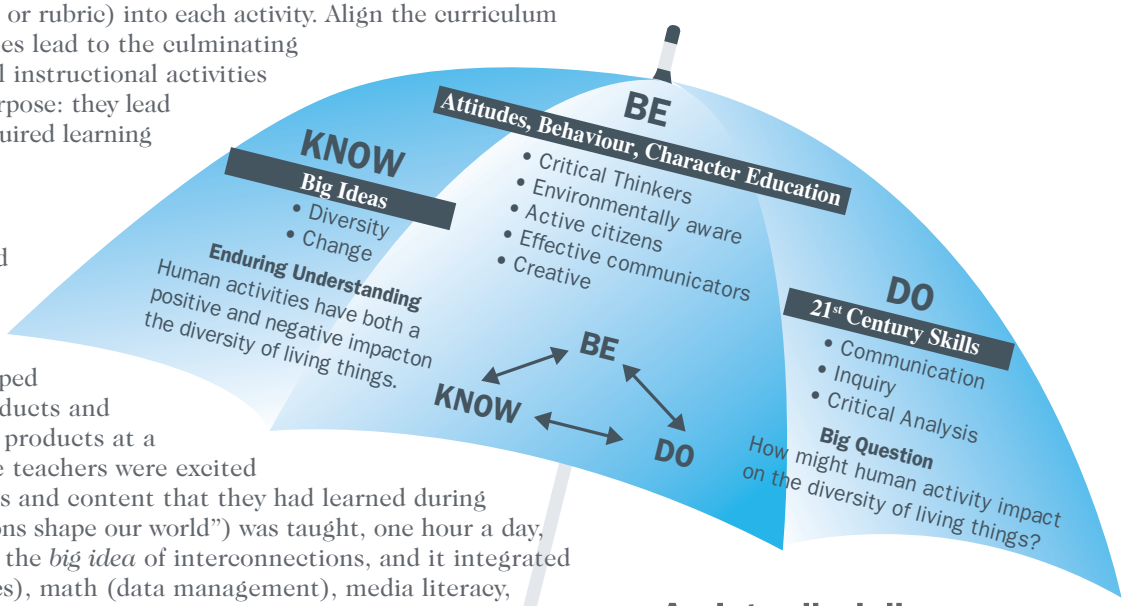
Practise "integrative thinking."[11] View the big picture and the detailed, subject-specific picture at the same time. Explore expectations through a wide-angle lens across subjects to identify the KDB and to determine how these are complementary. Simultaneously, use a zoom lens to identify subject-specific expectations to include in daily lessons.

Make connections that are natural, not forced. Brainstorming using a concept web helps. Experience with integration makes natural connections more apparent.

Think literacy across the curriculum. "I revisit the strands throughout the year. I begin planning with numeracy and literacy and let the other subjects fit in." Every subject area includes communications expectations: a scientific report, a history narrative, or an explanation of a math solution can offer rich possibilities to address literacy in meaningful ways.

Think real-world math. Real-world issues afford an opportunity to embed math into other subject areas. While studying fair trade, students could calculate transportation distances and the costs of bringing global commodities to the consumer.

7. Create daily instructional activities that address the Big Questions to ensure that students acquire the knowledge, skills and attitudes they need in order to be able to demonstrate the KDB. Embed ongoing formative assessment (e.g., observation, checklist or rubric) into each activity. Align the curriculum by ensuring that all activities lead to the culminating task and the KDB. Thus, all instructional activities and assessments have a purpose: they lead to the demonstration of required learning for the unit.



An Interdisciplinary Planning Process

Integrated Curriculum in Action

Grade 7 and 8 students created and administered a survey to research what products students would buy. After analyzing the data, they developed prototypes for the desired products and marketed and displayed their products at a school-wide Business Fair. The teachers were excited to see students apply the skills and content that they had learned during the year. This unit ("Interactions shape our world") was taught, one hour a day, for two months; it focused on the *big idea* of interconnections, and it integrated literacy, geography (economics), math (data management), media literacy, art (logos), history and science skills.

Other Grade 7 and 8 students participated in a unit ("We can make a difference, one choice at a time.") that centred on the *big ideas* of sustainability and social justice. The unit culminated with a Fair Trade Fair, to which parents and community members were invited. The students presented displays about global trade (for example, chocolate and coffee production) and its corresponding issues, such as child labour and environmental degradation. The students demonstrated both their achievement of curriculum expectations and their understanding of the big idea that "consumer decisions have a worldwide impact."

What was the impact of curriculum integration?

Student engagement: Teachers and administrators identified student engagement as the most positive aspect of integration. Administrators noted, "Strong engagement levels alleviated behaviour problems." Teachers described students as being excited and stimulated to work beyond expectations: "Engagement is HUGE!" Connections to the real world motivated students, and their interests, in turn, shaped instruction. Teachers, impressed by the level of classroom discussion, concluded that "integrated curriculum lends itself to higher order thinking skills."

"Now that I have taught this way, I can go never go back."

Think interdisciplinary assessment. The key to success is designing interesting, challenging and fun assessment tasks that are aligned with the KDB across two or more subjects. Begin by planning a rich culminating activity that encourages diverse ways for students to demonstrate learning (e.g., a medieval times festival or a science forum). Showcase student achievement by inviting an audience.

Embed challenging and interesting formative assessments that build toward the culminating activity. Arts and technology are subjects that allow for natural integration, especially as ingredients of rich assessment tasks.

Give students a voice. Ask students what and how they want to learn, and how they want their learning assessed. This is particularly effective for upper elementary students who are capable of interpreting curriculum expectations. They can effectively plan instructional activities and assessments to meet both expectations and their own needs.[12]

Consider collaboration. A teacher can integrate curriculum expectations alone, but it is more rewarding and creative when teachers work together. Yet, collaboration is not without pitfalls. Groups that are too large risk becoming incoherent and dysfunctional. Teaching partners should be ready and willing volunteers: integration requires a mindset as well as a skill set.

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Collaboration: Teachers were enthusiastic about planning collaboratively because it sparked ideas and encouraged new practices. Collaboration led to professional growth. Sometimes, students collaborated with teachers to help plan units or create associated rubrics (scoring guides). Understanding the criteria, students were able to assess both themselves and their peers.

Literacy: Literacy, no longer confined to language arts, was taught across the curriculum: "The biggest change was going from teaching one block of literacy to literacy throughout the program." Connecting curriculum to the real world fostered greater use of non-fiction materials, encouraged use of communication technology, and increased relevancy of reading and writing activities. These features especially appealed to boys.

Numeracy: Opinions about integrating math varied. Some teachers found they could integrate real world math with other subject areas: "The focus is on problem-solving. Real life connections are huge." Others found that they could integrate some aspects of math, such as data management. Most were comfortable integrating numeracy when there was a natural fit, but some felt that "numeracy is more challenging [than literacy] to integrate."

At-risk students: Although one teacher thought that integrated curriculum was best suited to high-achieving students, several others noted that it encouraged differentiation and offered the at-risk student more opportunity for success. "Integrated curriculum is especially beneficial for kids with special needs. They are doing everything other kids are doing."

Curriculum coverage: Some teachers expressed concern about adequately covering specific subject expectations. This concern was alleviated by the realization that they had met many specific expectations simultaneously in one unit, and – by focusing on the big ideas and 21st century skills – they had addressed expectations in greater depth.

Assessment: Reporting grades on summative tasks presented some challenges. However, since the curriculum was always linked to expectations, teachers could identify different subject areas within a rich assessment task and increase their use of formative assessment to prepare students for this task. A plus for teachers was that one assessment task could serve more than one subject. As one teacher said, "You can mark two or three things and get the same information as you would from marking many things."

In Sum

Educators who participated in this study were enthusiastic in their endorsement of the integrated curriculum project: "This is the most exhausted we have ever been, but it is also the most excited." "Now that I have taught this way, I can never go back." These comments echo the observations made by numerous teachers over the course of 20 years of research in this field. Clearly, curriculum integration is worth the effort.

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