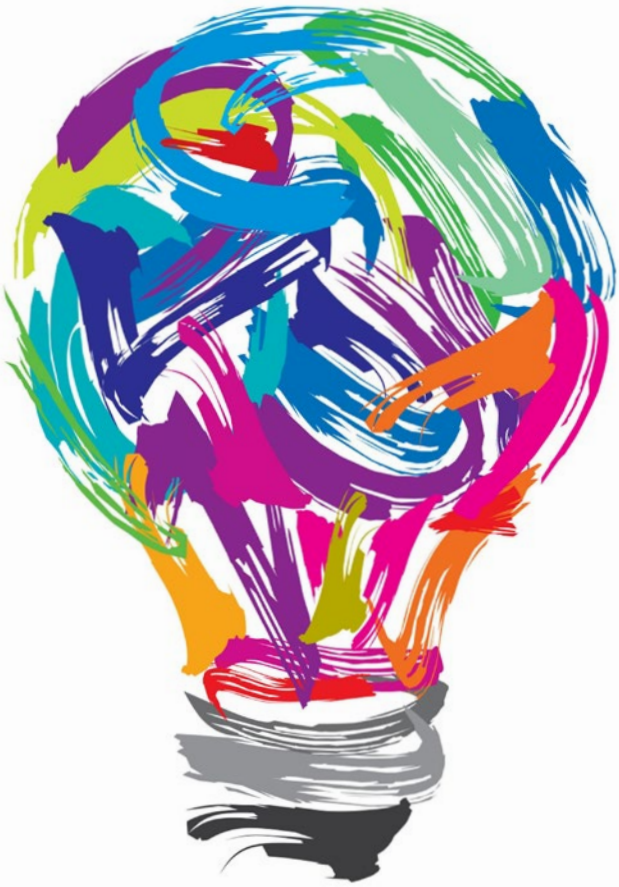
KNOWLEDGE BUILDING IN ACTION SECONDARY (9–12)



Knowledge Building: A (Fun)damental Shift

Written by Pieter Toth

Bringing IDEAS to life!

4.2 KNOWLEDGE BUILDING: A (FUN)DAMENTAL SHIFT!

Written by Pieter Toth – Head of the Business Studies Department, HWDSB

INTRODUCTION

This case study tells the story of how students at Dundas Valley Secondary School's Business department are using Knowledge Building principles to dig deeper into their own learning processes to create authentic, meaningful artifacts and demonstrations of understanding. Pieter Toth, the head of Business Studies at DVSS, has been experimenting and exploring with Knowledge Building since before he even knew it!

HOW IT ALL STARTED:

Pieter was talking to a teacher from another school about the inquiry-based learning that was taking place in his classes and she asked him how long he had been working with the Knowledge Building principles. He had no idea what she was talking about! So he asked uncle Google about KB principles and his journey began!

Once he read through some of the materials online and had a basic understanding of what KB was all about, he discovered that he had already been using a lot of the concepts informally. When he first read about the 12 KB principles, it was a bit overwhelming and he had no idea how to operationalize it in any meaningful way connected to the curriculum expectations. So, he did what he usually does when he gets stuck on something, he took it to the students. One thing he always does with students in all of his classes is break down the curriculum expectations and action verbs to co-create a common student-friendly understanding of what each one means. For KB, that meant doing the same thing for the 12 principles.

What was your greatest challenge?

My greatest challenge was time. Time to read and study the information, time to allow students to play with the concepts, time to extend the projects to support and honour the directions and development of the students and their groups, time for outside connections to respond, and time to reflect on the experience and evaluate the impact on the course, the students, and on me, as the teacher. The key was to see this as a fundamental shift in how learning was taking place, not just another add-on, but an actual change in how we all, as co-learners, expected learning to happen.

Move 1: Discussing the KB Principles

In his Grade 12 Business Leadership class the overall concepts of KB were discussed as a large group, then students were divided into six groups, each group randomly choosing two of the principles. Then each group began breaking down the language, the actual words within each principle, the concepts, and exploring the impact each principle might have on them as learners. Pieter moved from group to group listening in and being a part of each discussion without forcing or guiding the process. After 20 minutes each group presented their principles and discussion

points to the class. After each presentation, the class discussed the principles as a group and crafted a student-friendly version, or tagline, for each of the principles.

In a single 75-minute class the students went from having never seen the 12 Principles to having co-created their own versions and linking them directly to their learning processes.

Move 2: Linking the KB Principles to curriculum expectations

With his Grade 11 Marketing class, Pieter's students were working through the inquiry process and had just completed gathering background information on a specific set of curriculum expectations. Each group was preparing to share their information with the rest of the class. This can be done in many different ways, and in this particular instance, Pieter had a group of students who had reached the limit of their endurance for Power Point presentations. As a class, everyone agreed that they would spend 20 minutes discussing options and planning a single-period activity that would allow them to share all of the information gathered by the four teams in a way that would make sure that every student was exposed to all of the information and build in time for meaningful discussion.

The students quickly came up with the idea of using a jigsaw method (without knowing it was called jigsaw of course) and identified a logistical problem of making sure students were in different groups each time they shifted, so that every student would have the chance to share with every other student in the class. In no time at all, they came up with the idea of using coded nametags to tell students which groups they would form for each rotation through the cycle. They decided to use a combination of numbers from one to five, four colour versions for each number, four animal pictures, and five vegetables to represent four distinct grouping rounds through the cycle. They chose the pictures and vegetables and then left it up to Pieter to work out the logistics so that students would not be in the same groups more than once. He spent the rest of that class, all of his prep and lunch, and could not make it work out perfectly. So, once again, he took it to the students in his afternoon class and asked them for advice. They worked it out using mathematical permutation tables in less than five minutes! Pieter then fabricated the nametags using a colour printer and laminator.

The next day, the students in his marketing class used the nametags to determine their groups and shared the information they had gathered with every other student in the class, each student taking time to share their information, respond to questions, and then be part of a small group discussion. The class did three rounds of sharing in total. As an added element, each of the teams was given three of the KB Principles (along with the student-generated tag lines) in each round and were challenged to somehow include the principles in the discussion portion of the round. Once all of the rounds were completed, each student was asked to stand and share an "Aha! moment" with the entire class relating to the day's activity. The majority of students' comments were related to the KB Principles and how they connected to existing processes within the class.

Move 3: Incorporating the KB principles in project design (after the fact!)

In the 2014-2015 school year, Pieter's Grade 12 International Business class was tasked with creating an artifact around one of the curriculum expectations relating to global trends. Students conducted research with the constraint that all of their electronic sources had to be from outside of Canada. Working in small groups, then as a class, students shared their information and created a model depicting six major global trends impacting international business.

In the 2015-2016 school year, Pieter's International Business class had to begin with the artifact created in the previous year and design a project to build on and share that knowledge with other students within the school board. The project they designed focused on finding Canadian companies that operated internationally, making contact, interviewing them about the six trends, and then creating a blog within the HWDSB commons to share the trends and the results of the interviews. The class felt it would be more effective for each group to share their information in a variety of formats including text, photos, and a video, all to be posted in the blog. Once the entries were completed, each group invited the companies to visit the blog and provide comments. Pieter's task, as assigned by the students, was to contact business teachers in other schools and invite them to view the blog and provide comments. He took it a step further and shared the blog at a provincial business conference, inviting teachers from many different Ontario school boards to visit and comment on the blog.

For the final step of this project, Pieter presented the KB Principles to the class, they discussed each principle briefly as a class, and then the students had to write a reflection on how the principles could be related to the blog project. For the next school year, the plan is to have the International Business class review the blog and design a project to take it further — whatever that might look like!

Move 4: Incorporating the KB principles in project design (with intentionality)

Once the students in Pieter's International Business class had been exposed to KB in the blog project, they were challenged to design a project around three related curriculum expectations and incorporate all of the 12 KB Principles. The result was an inquiry project focusing on each group of students gathering background knowledge through secondary research, sharing that knowledge within their team, developing inquiry questions to dig deeper into the topics, and then making contact with one Canadian educational institution and one non-Canadian educational institution (students, teachers, or professors) to build on their knowledge through discussion of the inquiry questions as primary research. Students had to individually demonstrate their understanding of the curriculum expectations by creating a visual representation of the information they had gathered and a business report outlining the process, the research findings, the use of KB Principles, and a reflection on the experience. Students also sent a photo of the visual representation to the educational institutions contacted and requested feedback on the final product (see Figure 1).

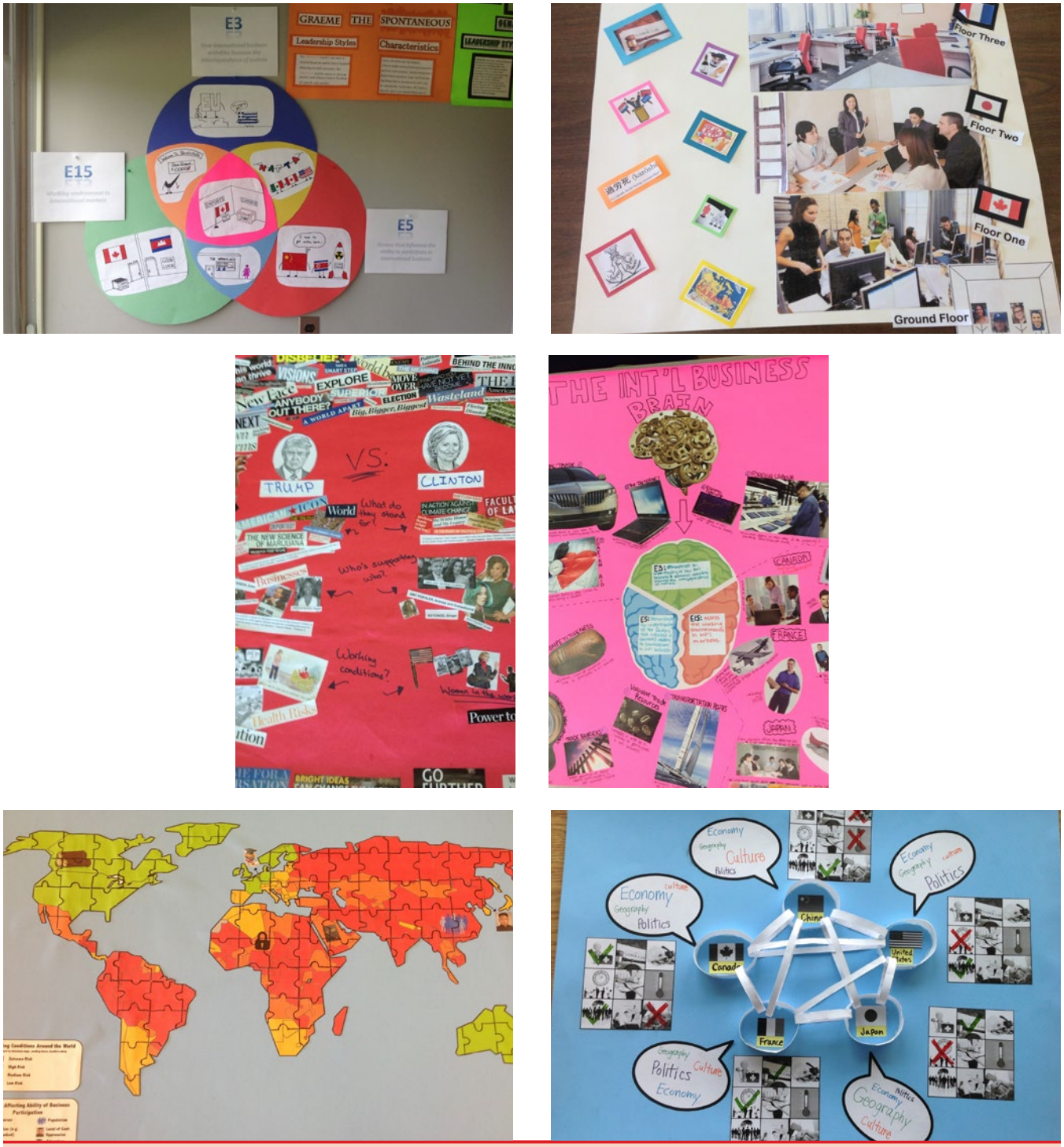


Figure 1: Examples of student demonstrations for Move 4

STRATEGIES FOR SUSTAINING THE USE OF KB PRINCIPLES

Over the past several years Pieter has been exploring a variety of cognitive thinking tools and initiatives in his classes as part of his own learning and development as an educator to increase the higher order thinking skills of his students. He has personally found the KB Principles useful in his own learning and is developing practical strategies for replicating that connection for his students. Pieter feels strongly that any strategy for sustainability must be linked to the curriculum expectations, be shared as widely as possible, seek feedback, and be as transparent as possible

for everyone involved. Several strategies include: creating visuals of the KB Principles and tag lines to be posted in the classroom, creating foam core boards outlining different processes related to each of the principles, using the HWDSB blog and other technology to share beyond the classroom, and inviting students to co-create resources as part of the project success criteria.

ASSESSMENT AND EVALUATION

Pieter believes that professional judgment is informed by three main areas of assessment and evaluation: observations, conversations, and demonstrations (products). In all of the courses that Pieter teaches he uses a combination of observation tracking forms, one-on-one and small group conferencing, class discussions, reflective exercises and assignments, and demonstrations of understanding (business reports, visual displays, class presentations, videos, blogs, etc.) to gather evidence and create a framework for frequent feedback. Pieter also spends a significant amount of time helping students build their reflection, critique, and self/peer feedback skills throughout each course.

NEXT STEPS

My next steps are to dig deeper into and explore the shared resources available for KB online through the Knowledge Forum. This is a tough step for me because I like to work with the students to co-create from the ground up so that we can all really and truly own the process. It makes me nervous to jump into something and encourage my students to jump with me, when I am not completely familiar with how it works.

TEACHER REFLECTIONS

What was your deepest learning, or, what was your aha! moment?

My deepest learning was about the interconnection between KB, the "Six C's" of deep learning, and the inquiry-based learning process. KB is both the umbrella and the end goal, the Six C's are the environment and catalyst, and Inquiry-Based Learning (IBL) is the process and vehicle to make it all come together. You can also add Integrative thinking as an important tool to deepen understanding of stance, models, and productive tensions within complex systems. It was incredible to experience, through the process of learning about and exploring KB, a model forming within my own mind about how these seemingly disparate concepts can actually all fit together and support each other within the framework of student achievement through the development of higher order thinking skills.

What did you learn about yourself in the process?

This process made me realize that I crave learning just as much as my students do, and that I am just as afraid to admit it to my peers.