

TEACH



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**With or
Without Tsunami**

**Technology
Roundtable
Discussion:
Part 2 of 3**

**CURRICULA
The Canadian
Studies Project:
Diversity**

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The Canadian Studies Project: Diversity



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NOTES FROM THE MARGIN

Hard to believe that school is winding down for another year. Teachers and students breathe a sigh of relief. We look forward to summer and the joys it can bring.

But there are those who will experience no joy this summer. It's hard to believe that it's been almost six months since the Tsunami disaster in South East Asia. Since that time, much has been done but much more needs doing. For those of us who have seen the news footage, read the accounts and heard the voices, we get a sense of the devastation. Like most things, the true impact is difficult to gauge unless you are there, on-the-spot, witnessing the scene firsthand.

We are fortunate enough to have a correspondent who did just that and who volunteered his time to the relief effort. He witnessed the destruction of the land and the despair of the people affected by this horrific event. Out of many things, however, come teachable moments. And this story is no exception.

We are also pleased to present the second part in the Technology Roundtable discussion, continued from last issue. In this forum, we bring together experts from both industry and education to discuss key issues involving the successful implementation of technology into the classroom, including best practices and barriers to success. Part three will run in Fall 2005.

The CURRICULA section is also a continuation of The Canadian Studies Project. Last issue, the first lesson plan on equity was produced. In this issue, the topic of diversity is explored in detail. You will find a thought-provoking scenario and compelling issues for you and your class to untangle. Diversity is an important topic, one that strikes to the heart of what Canada is and will be as the years progress.

We wish to acknowledge the generous contribution of The Department of Canadian Heritage, Canadian Studies Program, without which, development of this resource would not be possible. See the entire project online, including rubrics, curriculum links, assessment and evaluation tools at: www.teachmag.com/canadianstudies.

We look forward to your participation in TEACH Magazine in the fall.

Wili Liberman

Next Issue

Technology Roundtable: Part Three
The Canadian Studies Project: Interdependence
Futures, Web Stuff and more.

TEACH

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Anne Frank Online

www.annefrank.com

"Nobody need wait a single moment before starting to improve the world." These haunting words taken from Anne Frank's diary introduce visitors to the Web site, Anne Frank Online.

Anne Frank's diary was first published in 1947. To date, over 31 million copies have been sold and it has been translated into more than 67 languages. Anne's diary, which recounts the life and times of a family persecuted by the Nazis, remains relevant to present-day students and teachers worldwide.

Anne Frank Online is administered by The Anne Frank Center USA. This non-profit organization sets out to:

- Effectively introduce young people to Anne Frank, the Frank family's personal story and the history of the Holocaust
- Help young people and communities explore and challenge discrimination, intolerance, and bias-related violence in a positive and constructive way
- Encourage community-initiated programs that give people, especially young people, a chance to examine issues of diversity
- Recognize the importance of personal responsibility in confronting prejudice by honouring those individuals who actively work to promote the positive values of diversity and social justice

The Web site posts free student and teacher downloads such as The Anne Frank Story and The Holocaust in Holland, The Historical Context of the Diary, Glossary of Terms and Bibliography.

The scrapbook section of the Web site is sure to move any student. It contains poignant photos, captions and descriptions that vividly portray the human tragedy of the Holocaust.

Science News for Kids

www.sciencenewsforkids.org

Science News for Kids (SNK) offers timely science news items of interest to children aged nine to 13. The Web site includes hands-on activities, informative articles, Web resources and much more. Kids will find themselves immersed in the site's content when given the chance to comment on subject matter, ask questions of featured scientists, try mathematical puzzles and submit original work for possible Web publication.

The Web site publishes three weekly feature stories and archives past articles that range in subject matter, from agriculture to weather. It also provides links to MatheMUSEments, the previous week's articles, and a sign-up page for SNK's weekly e-letter.

The site features six zones that cater to the many interests of kids. PuzzleZone has a weekly brainteaser, SciFiZone targets aspiring science-fiction writers, while SciFairZone presents science fair profiles and tips. GameZone contains a selection of logic and memory games, TeacherZone offers resources related to the feature article of the week, and LabZone features a weekly hands-on activity.

Each zone has links to past articles and additional resources. Kids and teachers are invited to get interactive and grade each article and zone. Students can also post their comments in Talk Back.

SNK presents fascinating articles for science and math lovers, and it also encourages feedback from every teacher and student who surfs the site.

Pyramids: The Inside Story

www.pbs.org/wgbh/nova/pyramid

Pyramids: The Inside Story is an online adventure that will appeal to those learning and teaching about ancient Egypt.

The Web site is a companion to both the NOVA-produced television documentary This Old Pyramid and the video series Secrets of Lost Empires.

Teachers in search of engaging information and hands-on activities should go to Follow the Excavation, found on the site's main page. Read an interview with archeologist Mark Lehner or check out Who Built the Pyramids? Students will enjoy Hieroglyphs: Say What?—a fun exercise that asks students to crack the hieroglyphic code and decipher a hidden message posted on the site.

Click on the Table of Contents and scroll down to Resources, where you'll find various maps and a fly-by movie of the Gaza Plateau, downloadable in QuickTime and AVI formats. Here you will also locate Secrets of Lost Empires Teacher's Guides. Students are asked to build a scale model of the Great Pyramid (a printable template is available). Information about the height, base, blocks, angle and passageways are all presented with easy to understand explanations.

Fun games, activities and fascinating information bring ancient Egypt to life by unlocking the secrets from this civilization's mysterious past.

Marjan Glavac is the author of the new book "How to Make a Difference: Inspiring Students To Do Their Best," available at: www.howtomakeadifference.com. Marjan can be reached at marjan@glavac.com.

With or Without Tsunami

By Simon Gauci

Photographs by Simon Gauci



All strangers are relations to each other.

Arabian Proverb

My biggest worry was put to rest when I arrived at Bandaranaike International Airport in Colombo, Sri Lanka. The project coordinator, Ganga, was waiting for me with a sign that read, "SIMON GAUCI." We smiled, shook hands and waited a few hours for another volunteer to arrive from Canada. We then began our three-hour drive to Chilaw where my relief team would meet before heading south to Galle.

Upon arrival, I noticed the rest house in Chilaw was sparse in its facilities, although it did offer adequate comfort. As the remainder of the relief team arrived over the next two days, the laughter started and friendships began to form. We shared rooms, dorm-style. We ate our meals together while disclosing bits of our personal lives. We were feeling jet-lagged and trepid about the hard work ahead; seeking comfort amongst strangers was inevitable.

We heard horror stories from a Nepalese social worker that had been in Galle and Trincomalee. When I asked how bad it was, he replied, after a lengthy pause, "Very, very bad, terribly bad." Such simple words cannot satisfy one's hunger for understanding. Thus, it was with ignorance that my group faced the challenge of performing our charity work. All 22 of us packed into a bus like sardines, bound for Galle. The luggage on the roof roasted in the hot sun while the white "Relief Team" banner flapped in the wind.

We were anxious to begin our work, not fully focused on what lay ahead. The bus ride teemed with chitchat as we enjoyed our everyday luxuries: a few had earphones plugged in, some were text-messaging relatives, others flipped through magazines, munching on chili cashews. I gazed out the window, transfixed by the Indian Ocean.



Rubble appeared slowly and intermittently, truth becoming its companion. As we travelled further south to Kalutara, the wreckage appeared more frequently and with considerable voracity. Piles of debris from fallen houses, schools and shops lay on both sides of the coastal road. All that remained of most homes were their foundations. Tents were pitched for the temporary comfort of denizens struck by the great wave.

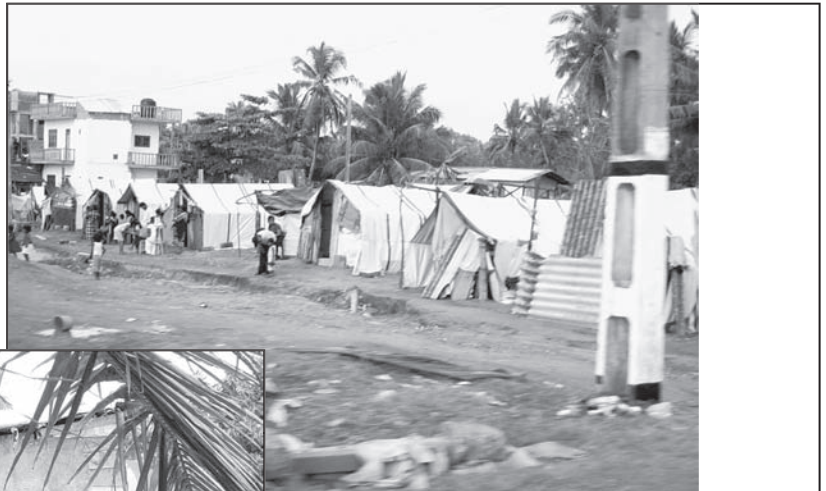
Zooming south past Ambalangoda and Hikkaduwa, the chitchat stopped, earphones were dropped and magazines were closed. A few kilometres south, we saw the remains of a whole village, wiped out. A naïve silence jarred our eyes wide open with disbelief as we drove past an area where a passenger train had been thrashed into a river, drowning thousands. A deadly stillness carried the bus past the devastated tracks.

Horns from the tuk-tuks, trucks and cars coming at us head-on, swerving at the last minute, reminded me of India. The smell of diesel permeated the bus, and the perfume of burning garbage caused my nose to twitch, forcing my mind to momentarily switch gears. Fleeting thoughts pestered my conscience. I began to

from the locals; these scenes added to the pervasive, daunting mission we were about to embrace.

On either side of the coast road there were hundreds of tents, camps and makeshift homes, rebuilt using salvaged wood and metal. Giant black plastic water tanks read: “Drinkable Water.” Indeed it was “very bad, terribly bad.”

We arrived at our homestay that night exhausted, excited and anxious. In our house there were 11 workers; another 11 were in a house two kilometres away. I was desperate to get horizontal and happy that, as the only married man in the group, I got my own bed. Adrian, a nurse from Dublin, remarked that this was luxurious for relief workers.



My roommates—two girls and a guy—divided up the other two beds. The rooms were petite but clean. The house was respectable but small. The toilet was outside. One of my roommates, Michelle, pointed toward the loo and said, “I just saw the biggest %\$&^* spider!” Our host, Amal, took care of the insect with the sweep of a broom, no doubt thinking, “silly tourists.” In all fairness’ sake, the spider *was* massive—it was the size of my hand spread out as though I were giving a five-minute warning to my son.

think about my wife and children; I thought about the thousands suffering; I thought about how I was getting hungry and tired during this five-hour bus ride. I thought about how I could leave but the tsunami-stricken could not.

Then, the Indian Ocean curled itself onto a barren sandy shore. Dozens of fishing boats sprinkled the beach, snapped in half like bread sticks. Some looked like giant turtles, resigned. Fishermen in *lungis* stood beneath the bows of their boats held upright by scrap wood and bits of rubble. Some scratched their heads while others were hard at work repairing holes made by the irregular patterns of the tsunami.

And so we continued our myopic drive along the coastal road from Colombo to Galle. We saw children running after our bus and we heard the occasional cheering and smiles

Once in bed, we giggled until midnight like it was summer camp, but we knew our emotions were like those at a funeral: uncomfortable, uncertain and unfamiliar, reflecting the masked façade of the task that awaited us.

The next morning after breakfast, we took a two-kilometre hike to town in 33°C sweltering heat. When we arrived at a Buddhist temple, I felt like we had already worked a full day. I drank a litre of water during that walk alone, but our day was just beginning. After the monk introduced himself, he walked us down to our site.

Our team got to work picking up salvaged building materials and clearing garbage, namely personal items, clothing and household goods, all saturated with the stink of suffer-

ing and the horror of apathy scribed on the water-stained walls and faces of villagers still in shock. I felt betrayed by my disgust at the thought of coming across a dead body. My own demons were visible in the softness of my spoiled hands. We had not a shovel or a wheelbarrow. I worked for 30 minutes, which, to me, felt more like eight hours. Shamefully I admit I wanted to run away. What kept me there, however, was the widow offering an appreciative smile and her garden hoe.

The days that followed were much the same. We arrived at the temple, the monk gave us instructions and off we went to the work site. My most overwhelming project was clearing sewage and debris from the local hospital. I did not think that

employed? What about Galle's middle class folk? Few of them offered their homes to the displaced locals, but happily put up our relief team for two weeks with room and board—at a fee of USD\$230 each. I remain grateful to my hosts and do not wish to sound distrustful, but these were the conflicts I saw.

As a reprieve to our impaired optimism, we were invited to the New Moon Evening Celebration at the Buddhist temple. The ceremony consisted of beating a drum and passing incense, coconut oil lamps and candles down a long line toward the Buddha for an offering. The people wove an uplifting tapestry of gratitude and prayer as the monk issued prayers over the loud speaker. Then, in the distance, I heard the Imam call to prayer. In unison, Buddhism and Islamism were both offering comfort to their people. As a Christian, I embraced the stillness that surrounded the moment—a serenity I had not felt in years.

As the months unfold, can we sift through the ashes of tsunami detachment? Will we help each other to see past politics, laws, fundraising and forgetfulness? We are an erratic creature by repute. However, we are a determined species, and in such times of crises, we are capable of leaving our comfortable lives. Indeed, we can remember that *we* have so much, and that too many have so little, with or without tsunami.



pulling waste out of a blocked sewer with my hands would offer me the slightest bit of satisfaction, but somehow, in the midst of such a task, I discovered that I was contented to do for them whatever was needed.

One morning we visited a public school. The children welcomed us, singing us a song. Across the courtyard, the principal was engaged in a stifling hot meeting with the parents. I strolled around and saw several damaged buildings. The rubble piles were being bulldozed away and dumped into the ocean.

The locals in Galle were anxious to spin their tales. One man, pointing to heaps of rubble, said, “No one come from government, they leave us to here, look.” Later, a woman pulled me toward a pile of debris, saying, “My home, gone. My family, gone. No money. Gone.”

For some, fear is so great that they remain in the hills to which they fled when the tsunami struck. Orphaned children wait at the temple for relatives who *may* come for them. Men are angry at the political vacillating – they feel abandoned by those who have the power and resources to help. Municipal laws may restrict people from rebuilding their homes or shops within 300 metres of the coast.

Tensions mount between neighbours. Who decides which family gets a tent? Who decides which individual is to be

Simon Gauci is an art teacher and freelance writer in Riyadh, Saudi Arabia. For the past six years he and his wife have both been teaching in international schools and in July will be moving to Quito, Ecuador to begin their next teaching adventure. They have two children. Simon Gauci can be reached at spgauci@hotmail.com.

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Curricula

Reproducible Insert

THE CANADIAN STUDIES PROJECT: *An Exploration of Culture, History and Interconnectedness.*

Lesson Two: Diversity Getting On and Off the Bus

Duration: 1-6 Class Periods
Grade Level: 9-12

INTRODUCTION

Welcome to The Canadian Studies Project. In successive issues of TEACH Magazine, you will find four lesson plans that explore the following themes: equity, diversity, interdependence and peace.

Due to limited space, the curriculum links and additional content will be posted to the Web site: www.teachmag.com/canadianstudies. The content of The Canadian Studies Project is also connected to a television series called *Get Outta Town!* (www.getouttatown.tv), where the hosts travel the world and meet up with teenagers to experience the life and culture of different communities from the local teenager's point of view. Video content from the series is posted on The Canadian Studies Web site.

Canada is a country of diverse peoples. Through the activities detailed in the following lesson plans, we are confident that you and your students will enjoy and celebrate Canada's unique status among nations.

We would like to hear from you. Please contact us at info@teachmag.com and let us know the kinds of projects and activities in which you have engaged. Send us your students' work and we will post the best entries on The Canadian Studies Project Web site.

"We have it all. We have great diversity of people, we have a wonderful land and we have great possibilities. So all those things combined, there's nowhere else I'd rather be."

—Bob Rae, former premier of Ontario

KEY CONCEPTS AND ISSUES

This lesson plan explores the theme of diversity from the perspective of recognizing that differences equal strengths. Seeing and understanding these qualities is vital to accepting differences in others. Understanding differences leads to knowledge and insight into other cultures and experiences whether one interacts with an individual or a group.

LEARNING OUTCOMES

Students will:

- Learn to accept differences in others
- Gain insight into other cultures and experiences
- Reaffirm their own cultural identity while learning from others
- Work together in teams
- Hone their communication skills
- Critically assess situations and events
- Benefit from real world experiences

CASE STUDY

Getting On or Off the Bus

Maya is planning her first cross-Canada vacation. She is travelling with a group from her high school to each of the provinces and territories. She is very excited because this is the first time she is going somewhere on her own without her family. Maya is doubly excited about this trip for another reason. During the year, her English class developed an online communities project with schools across the country. This project involved creating a global campaign for the purpose of publicizing the dangers of land mines in war-torn communities around the world. Maya's class connected with other classes, and she became good friends with Sean from Cornerbrook, Lise from Trois Rivières, Roberto from Edmonton and Sasha from Vancouver. Maya will meet her online friends face-to-face for the first time when they link up in Halifax. They will travel together with the group for six weeks.

During the course of the land mines project, Maya exchanged personal information with her new friends. They found out that her parents are originally from Trinidad but immigrated to Canada just before she was born. Her mother's family is originally from India, while her father is a native-born Trinidadian. Sean's grandparents came from Pakistan and immigrated to Newfoundland in the 1960s. Lise's mother's family emigrated from South Vietnam to Quebec in the early 1970s. Sasha's family hailed from the north of Italy, very close to the border of the former Yugoslavia. After WWII, Sasha's grandparents moved to Florence, Italy, where she was born. When she was three, they came to Canada. Roberto's family is pure Catalan (located in the region around Barcelona) and dates back many generations. He was six when his family came to Edmonton.



Maya and her new friends have a number of things in common. They are all the same age, speak English, and love the idea of travelling across Canada to see and understand how the country works. They all like to seek different experiences. They all like the idea of being exposed to new things and embrace the spirit of adventure.

However, they all come from different cultures and backgrounds and, inevitably, some miscommunication may arise. Each individual has a background that is shaped by specific customs, conventions, ideals and manners.

For example:

- Sean is a Muslim and doesn't drink alcohol or eat pork
- Lise, Sasha and Roberto are used to having wine with their meals even though, technically, they are underage
- Roberto is a smoker and feels this is okay because it is readily accepted in his culture
- Maya plays on her school basketball team but the others don't care for the game
- Sean and Roberto are huge soccer fans but Maya and Lise aren't interested
- Sean prays five times each day and carries a prayer rug with him on the trip
- The others aren't particularly religious and don't attend services on any regular basis even though Roberto says his grandparents are strict Catholics
- Maya has a strict curfew when she is at home, but Lise and Roberto can stay out as late as they like, even on weekdays
- They all like different types of food and music but share an interest in hip hop.



The following are some sample scenarios that Maya and her friends encounter on their trip:

- Roberto sits at the back of the bus and smokes, even though others around him object
- Sean interrogates every waiter in every restaurant to ensure he is not breaking any of the religious laws governing food by eating pork
- Lise, Roberto and Sasha regularly stay out after curfew because that is what they are used to. They try to convince Sean and Maya to do the same, even though the tour company has rules against it
- The others find it disconcerting when Sean stops everything he is doing so he can pray, whether it is on the bus or in the middle of a tour
- No one else among Maya's new friends likes or understands basketball. They can't figure out why she is so obsessed with it just because she plays on her school team
- Sean is critical when he sees situations in which others on the tour are drinking alcohol
- Roberto is always perfectly groomed and never wears short pants, which the girls think is funny

TEACHER DIRECTED DISCUSSION

Step One: Teacher-Directed Discussion

(1 Period)

Have students in the class read the above scenarios. Teachers should explore the concept of belonging and wanting to be part of a group. Each of the above characters has different ideas, attitudes and perspectives that shape their outlook and actions. Introduce the idea of "being on the bus" as a metaphor for fitting in. This is sometimes difficult to do when an individual interacts with a diverse group. The idea is to be open-minded and then figure out how all of the experience, knowledge and skills within the group can be harnessed to solve problems and challenges.

Spearhead a general discussion with the class about Maya's situation. What do students think? Do they feel

that Maya will be able to accept the differences in her new friends and have an enjoyable trip? Do members of the class have some experiences of their own they wish to share? Have they travelled under similar circumstances? Students may share their comments and insights with the rest of the class.

Step Two: Creating an Action Plan

(2 Periods)

Divide the class into groups of three or four. List the scenarios from Step One:

- Roberto sits at the back of the bus and smokes, even though others around him object
- Sean interrogates every waiter in every restaurant to ensure he is not breaking any of the religious laws governing food by eating pork
- Lise, Roberto and Sasha regularly stay out after curfew because that is what they are used to. They try to convince Sean and Maya to do the same, even though the tour company has rules against it
- The others find it disconcerting when Sean stops everything he is doing so he can pray, whether it is on the bus or in the middle of a tour
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- Sean is critical when he sees situations in which others on the tour are drinking alcohol
- Roberto is always perfectly groomed and never wears short pants, which the girls think is funny

Each group will pick a scenario and discuss it among themselves. Give each group 15 to 20 minutes for discussion time. How would they respond to the situation? What positive strategies can students employ to mitigate the possibility of conflict? If there is conflict, how would they resolve it constructively? Each group will select a spokesperson who will summarize their discussion orally to the rest of the class in a two-minute presentation.

In period two, the same groups will select another scenario, one they did not discuss originally. The members of the group have now become the official Bus Authority. This is the legal entity or legislative body that has jurisdiction over buses, what takes place on those buses and the people who ride them. As the official Bus Authority, come up with a legislative or legal solution to the scenario chosen. This might come from the result of a legal debate. It may involve the passing of a new piece

of “bus” legislation, or perhaps, using existing rules and regulations if the situation warrants it. Again, the groups will discuss the scenario they have chosen for 15 to 20 minutes. They will select a spokesperson who will present their legal/legislative solution to the rest of the class.



Optional Extension Activities (1-2 Periods)

Step Three: Off the Bus

You may keep the same groups as before or divide the class into new groups. Regardless, each group is still the official Bus Authority. Thinking about Maya and her friends as they travel across Canada, a member of the tour group commits a transgression. The official Bus Authority must decide what this transgression is and describe how it violates Bus Authority rules. The transgression is serious enough that the individual who committed it may be ejected from the bus. The Bus Authority will discuss the seriousness of the transgression. One member of the Bus Authority will present the situation to the rest of the class.

Step Four: A Second Action Plan

Divide each group in half. One half of the group will act in the role of advocate for the individual who committed the transgression. The advocates will defend the actions of the individual and make a case for their “client” to stay on the bus. The other half of the group will act as opponents of the individual. These people will state their

reasoning for why the individual should be ejected from the bus. They will state their case detailing their reasons and, in particular, how the individual’s actions have violated the laws of the Bus Authority.

Each group will make an oral presentation to the rest of the class. The groups will describe the situation and the potential outcome. Then, the advocates will state their case in favour of the individual and why he or she should be allowed to stay on the bus. The opponents will do the same, describing why the individual should be ejected from the bus. The class will then vote on which side stated their case in the most convincing way. Each side will have about five minutes to make their presentation to the rest of the class.

Step Five: Comparison

In the television series *Get Outta Town!* (www.getouttatown.tv), the hosts experience 13 different cultures around the world, each time meeting up with a cohost native to each culture. Each of the cohosts is different, speaks (for the most part) a different first language, lives in a different environment, eats different foods and has different interests and talents. In each episode, there are both similarities and differences in the lifestyles that they lead compared to North Americans. Select one episode from *Get Outta Town!* and compare and contrast the lifestyle of the local cohost to that of the students in class. This could form part of a group discussion with the entire class or breakaway groups of three to five within the class itself.

ASSESSMENT AND EVALUATION

Evaluate the class teams on their oral reports:

Suggested criteria:

- Content (was the content/strategy clearly articulated and well thought out? Were the points the team made persuasive?)
- Presentation (was the presentation well-delivered, easy to hear and understand with good vocal quality, gestures, postures, etc.?)
- Effectiveness (were the points presented effective, and how practical were the suggestions?)
- Teamwork (did the group work well together?)

Assess students on their written work:

Suggested criteria:

- Grammatically correct with sentences properly structured (i.e., use of complex sentence structure and correct verb tenses, spelling and punctuation)
- Comprehension of the word/phrases—sentences clearly reveal the meaning
- Ideas are expressed clearly
- Information is well organized

Evaluate students on their presentation work:

Suggested criteria:

- Present information clearly
- What have they done to enhance the presentation?
- Effective use of oral and visual communication

Student self-assessment of teamwork:

Suggested criteria:

- Contribution to group knowledge
- Preparation undertaken for research and investigation
- Articulating goals, devising alternate solutions, selecting best alternatives
- Setting personal goals for working effectively with others

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Welcome to TEACH Magazine's roundtable discussion on technology and education. This is part two of a three-part series. Participants are discussing what policymakers need to know, changing parents' minds about technology, the importance of how and what teachers teach and newly emerging value skills due to the use of technology in education.

Technology Roundtable Discussion

Part 2 of 3

Transcribed by Noa Glouberman



Participants:

Dan Lang (DL), D.Lang and Associates, Moderator

Avi Oaknine (AO), Adobe, Education

Simon Geoghegan (SG), Microsoft, E-learning

Janet Murphy (JM), K-12 Education, York University and York District School Board

Bob Kennedy (BK), Apple, Education and Technology

Richard Worzel (RW), Futurist, TEACH Magazine columnist

DL: Within your observation that policymakers are not getting all the elements at play to support institutionally effective new ways of teaching, what are people not understanding?

RW: They don't understand the technology themselves. For them to try and institutionalize it, they're basically doing it by rote. They're trying to bolt the technology onto existing methods.

DL: What do policymakers need to understand to allow the institutionalization of practices?

JM: When you use technology effectively, you flatten the silos. In education we have an area that coordinates the curriculum, a group that coordinates staff development and a group that coordinates infrastructure. A line is drawn between these silos.

When you're effective with IT in the classroom, the professional development piece fits right in. Students and teachers learn together. Students learn from the curricular side and teachers pick up tips about how to run the technology. Dollars to school districts that maintain, build and sustain the technology have to flow in a different way.

There are gaps between what classrooms, schools and school districts have. If we could understand where it's working and what process is in place that's allowing it to work, that's something we should duplicate. There are technical applications students have to understand and use. A lot of teachers don't understand the best teaching practice that will maximize the value of technologies for learning.

AO: When I first came on board with Adobe, I felt out the education community by asking what they thought was missing and how Adobe could help make their curriculum practices better. Access to the tools was a problem. Larger school districts generally had better access to our tools, by virtue of their ability to procure volume. In some cases, smaller school districts were paying twice as much.

At a provincial level, no bodies were engaging with key vendors or trying to build an infrastructure for procurement to allow access to the tools. There is a role for technology in education, but how do we get access to these tools? As Janet said, it's a top-down rethinking of how dollars need to flow to bring equitable access to school districts, regardless of size, across Canada. Over the last two years we've been focusing on building an infrastructure for equitable procurement across Canada.

BK: When I worked in Allen, Ont., the deputy minister was in favour of putting forth a technology agenda. She spent a lot of money trying to make it happen, but the support wasn't there. There are a lot of battles going on; there's the question of the public acknowledging the value of technology, particularly at the K-8 level. They might be more open at the secondary level; they're certainly open at the post-secondary levels.

SG: Is that because of how we ask the question, "Do you want to spend money on technology or on the outcomes?"

BK: It's not about the technology—it's a learning perspective. Most of us in education aren't that familiar with the research about learning. There's a gap in our understanding about what the learning sciences have demonstrated, what the research has said and what the practice is.

Unfortunately for us, the effective use of technology and learning reflects what the sciences are telling us. Teachers get enough equipment in the classroom, but that's not as much of a driver as their beliefs about learning. The transformation has to occur. The nice thing about technology is that it's an innovation you can't close the door on.

RW: Because of the disparity of knowledge between teachers and students, there's a risk that students are using technology to cheat, and that teachers aren't well-versed enough to catch them, whether it's downloading papers from the Internet or messaging back and forth on their cell phones during exams. Technology is actually working against what teachers are trying to accomplish.

BK: Kids today experience concepts differently. Their ideas are different and are expressed differently. Teachers need to understand the curriculum from the children's point of view in terms of technology. Teachers need to understand technology from the perspective of what they're trying to teach.

Here's an example of an instructive precedent: Johann Gutenberg invented moveable type, revolutionizing learning and teaching. It made books cheap and accessible. Writing became a valuable skill. People started to write things down instead of memorizing them. People were concerned that the invention of literacy would result in the decline of the ability to memorize things. They were right. The same thing is happening now. The new medium, technology, offers more than static literacy does.

DL: There's a shifting of valued skills today. What value skill is emerging?

RW: The ability to communicate in a dynamic rather than a static way.

BK: It's a new way of perceiving information and seeing patterns, which leads to knowledge. The notion of knowledge building becomes very powerful because now we can make incredible amounts of data available to children. The power of technology is going to expand what kids are capable of learning and where they'll go with it.

RW: The poor teacher is still working with a 19th century assumption about the nature of school and schooling. Today schools are no longer the centre of knowledge.

JM: Before Gutenberg, only certain people had books. After Gutenberg, everyone could, potentially, have books. Before technology, teachers had the power of information to share with people. With technology, everyone can build that knowledge pool. The faculty member or teacher is not the only holder of information anymore—children understand that.

A teacher or faculty member helps people ask the right questions, synthesize the right information and then filter it. Learning is a social activity; schools allow people to engage each other with new ideas. There's a wonderful role that education can play in this new era. People are just struggling to figure out what it's going to look like.

AO: The discussion has to shift from technology to learning. School boards come to us with success stories about the effective integration of technology. One example is a school district with the challenge of engaging females in the sciences at their secondary schools. Introducing certain technology tools was the answer. The sciences had to be made more engaging, with students working on activities with collaborative tools versus just sitting in front of a beaker.

BK: Great teachers have critical judgment and use language in a disciplined way; that won't be lost with change. The teacher is a modeler of ways of thinking, asking questions and prodding.

Our expectations are going to rise for teachers. The kind of skill sets they are going to need will be high standard.

AO: We get some objections to the innovative use of our technology. When we release a new version of a product, educators often come back to me and say, “There goes three weeks of my curriculum. You’ve just taken a process that involved 17 steps and now it’s a push of a button. How do I fill in those three weeks of space?” The vendor side perceives research, innovation and development as beneficial. The flip side is that you’ve changed the teachers’ whole world again.

Students have access to information and tools, and place higher expectations on teachers. The industry tells teachers, “You need to move forward because we’re moving forward.” Technology can be a very scary place because of the professional development demand on teaching staff and the lack of support thereof.

DL: Richard, you raised the concept of the Gutenberg example—the old and new skills. In the province of Ontario, there is a focus on numeracy and literacy. If you were to ask a number of people what “literacy” means, we’d find a pre-Gutenberg understanding. If you’re not literate, you can’t do the curriculum. If you couldn’t memorize in the pre-Gutenberg era, you couldn’t do anything. Please explain the new skills that will be the equivalent of the post-Gutenberg era ability to read and write. These new skills include the ability to synthesize data or see patterns. What are some other skills that could be the foundational skills that all kids must have in the future?

RW: Human skills – soft skills – are becoming more important for teachers and students. The routine grunt work of teaching – grading exams, developing lesson plans, creating presentations and lecture notes – is gradually being automated so you can download lesson plans and exchange presentations. You don’t have to invent everything yourself.

Students are placing greater importance on teamwork, leadership and followership. That means the ability to intuit, create and innovate where you’re going rather than plod through a given subject matter. That leads to the most overlooked and perhaps greatest potential of this technology: the customization of this curricula and the customization to the individual. In the world outside, routine work is disappearing and individuals have to emerge from the education system with unique skills for the workplace. You can’t teach the curriculum anymore—now you have to teach the student. That is possible with technology. It’s going to come very slowly because it is completely antithetical to the 19th century model of education. One reason why there’s so little support is that most parents and teachers are in a pre-neo-Gutenberg mindset—they’re convinced memorization is crucial and anything else is anti-education.

DL: Are they convinced the neo-Gutenberg view of literacy is the way to go, or have they simply not been presented with an alternative?

SG: They have no picture. As Bob said, you can’t describe what an effective classroom looks like; you need to actually experience it firsthand. Every generation goes through that. Twenty years ago, if you had a really good memory and remembered facts you’d do well on history and math exams. Now, a student that doesn’t have that skill, but has a browser and search engine, can pull those facts up virtually as quickly as a student with a good memory. The ability to store a lot of facts isn’t that valuable. Students have the ability to aggregate, and, importantly, the ability to filter. There is more information available to us than we can consume, but judging what parts of that information are useful or relevant is more valuable.

Critical thinking, which is now moving from higher education down into the K-12 system, is important. Twenty years ago, you would get perspectives from your teacher, other teachers, your parent or a book. Now, when students learn a subject, they get dozens of perspectives, including firsthand perspectives from the Internet.

The ability to collect facts isn’t so valuable, but sifting through those facts and fitting them into one’s worldview is. Teachers who can be a guide for their students will be valuable. The role of the teacher now is more important than the role of the teacher in the 19th century.

BK: There are two strands that demonstrate where technology will impact schooling. One has to do with narrative storytelling, the other with visualization and simulation, relating to science and math. Take our one-on-one project in Fort St. John—we’re now in our third year and the results are still improving in terms of what the children are capable of doing. When we start to add technological elements, the children’s writing takes on a richer, more 3-D framework. Children aren’t less literate; they’re more literate. They’re combining more aspects of meaning and communicating more about their experiences.

Parents think children are focusing on literacy in a traditional way. But if you actually look at the activities and the way in which the children are engaged with the technology, they’re using a very different kind of writing process. The writing process changes for the children; they get better and everyone else does too. We should make sure all kids can achieve this—it seems to be what’s opening the door.



By Richard Worzel

Technology is a hot topic – and a controversial one – in education. A lot of money is spent on it, and there's little agreement about the benefits. A recent article in *The Wall Street Journal* indicated a startling high-tech tool being used in some British classrooms that is proving to be surprisingly effective. The technology? Individual-sized whiteboards and markers. When a math teacher gives a group of high school students a problem in class, she plays quiet music in the background while the students work on the question. Instead of calling on someone who has their hand up, she has the students write their work on the whiteboard. When the students are done, they hold it up for their teacher's inspection. Everyone is expected to do this—no one must volunteer an answer or experience the potential public humiliation of being wrong. Even shy students are participating and learning more than they did before.

Interestingly, girls in particular are showing marked improvements in their math scores, catching up to and even surpassing boys in the subject. Perhaps the discussion of “innate differences” between girls and boys in math and science should look at classroom dynamics along with whether male brains are more logical than female brains.

The *Wall Street Journal* article truly begs the question, “What is appropriate technology in the classroom?” I find

this particularly interesting because I know people working at each end of the technology spectrum.

As an example, I'll tell you about my friend Tom who effectively retired rich in his late 40s. I say “effectively” because Tom sold a technology company he had founded for a lot of money, and then started a different kind of tech company in the late 1990s, which collapsed shortly after the technology boom. The company was ahead of its time—when the tech bubble collapsed, everything tech-related, good or bad, was tossed out with it. But Tom still had a fortune from his earlier successes. By 2002, he had a lot of money, a lot of time and a passionate interest in technology, the environment—and in education.

Tom had a difficult life as a child—he was destined to be a problem kid until he attended a school in Montreal where the teachers took an interest in him, straightened him out and set him on the path that eventually led to his prosperous life and fortune. Tom didn't forget this help, and he has shared his financial success with his former school.

Recently he heard that his alma mater was going to design and build a new school with “ordinary” classrooms. He disagreed with this plan, insisting that they build state-of-the-art classrooms. They could pay for the structure; he'd design and pay for the technology. As he was describing some of the things they'd implemented, I found myself reflecting on all the technology-laden schools I've visited and read about that had almost zero impact on the education of the children who went through them or society as a whole. Although they're filled with wonderful tech-toys, they fail the ultimate tests of technology.

For instance, Tom started talking about the panel computers used by the teachers: they use stylus rather than a

keyboard, and content can be projected on a screen at the front of the class by a data projector. My initial thought was that this was a waste of resources. The teacher can accomplish the same thing with a blackboard and chalk (although there is a slight advantage—the teacher doesn't have to turn his back on the class to write on the board at the front of the room).

Then he mentioned that the material written on the panel computer was stored, the teacher's instruction recorded and students could access both through the school's intranet. Any student who missed the class, was daydreaming or just didn't get something the first time around could do it over again later, e-mailing questions to the teacher if necessary. Hence, the technology made it easier for a student to review and lock in a particular lesson.

It's not immediately clear to me if this is a long-term improvement. The fact that students can review a lesson doesn't automatically mean they will review it. But I can focus on what is appropriate technology, and how we decide when to spend money on technology.

After years of thought and consideration, I've come to two very simple rules of thumb, one for a classroom or school, the other for society as a whole.

On an individual or classroom level, technology is useful and appropriate if, and only if, it helps teachers teach and students learn—nothing else matters. A key lesson I drew from the British use of whiteboards for math, for example, is that success in education often depends more on teaching in a way that works for students rather than the nature of the tools used. With that in mind, consider if it is more cost-effective to use new technologies or chalk and blackboards.

• *Continued on page 22*

Archives Canada: Your Gateway to Canada's Past

Not long ago, archives were understood to be the realm of professors, historians, and other specialized researchers. Archives were important and impressive, but seemed beyond the information needs of secondary school students. Of course, that notion has changed dramatically, just as information technology and archives themselves have changed dramatically over the last twenty years. With renewed value placed on Canadian history, community heritage and social engagement in school curricula for students in grades 7 to 10, archives now play a vital role in providing these students with access to ideas, information and creative experience.

The online gateway to that experience is Archives Canada (www.archivescanada.ca), also known as the Canadian Archival Information Network. This collaborative effort, coordinated by the Canadian Council of Archives, has been called “the most important single effort in the history of Canadian archives.” The importance can be seen in the way Archives Canada brings together national and provincial archives in one searchable site, and in the way students and educators at all levels can gain dynamic access to Canada’s history and heritage. To explore Archives Canada is to uncover the rich evidence of our collective memory, preserved in documents, maps, photographs, sound and visual recordings. Many of these historic materials can be examined firsthand through the dozens of virtual exhibits linked to Archives Canada. From ship-building to space travel, from First Nations to the Famous Five, Canada’s vast story is made tangible through innovative online displays.

As a versatile learning tool, Archives Canada can give shape to any number of classroom and extra-curricular activities. A foundation in Canadian studies is established through the network’s national range, as well as through the detailed attention to regional, local and individual stories. These stories are told in voices past and present, and interpreted through an online medium that will stimulate new approaches to group and individual projects. As they participate in Archives Canada’s learning environment, students will gain an appreciation of the immediacy of Canadian history, learn to work with primary and secondary sources, develop bibliographic skills and apply multimedia research technology to their studies.

The value of Archives Canada is evident in the support the network has received from provincial governments, the Canadian Culture Online Program of the Department of Canadian Heritage, Library and Archives Canada, and hundreds of archival institutions across the country. The network is maintained by the Canadian Council of Archives, whose national role is to coordinate, support and contribute to archival efforts, and to ensure that these efforts are communicated to the Canadian public.

As a result, archives across the country today are the realm of students and their teachers. The Canadian Council of Archives invites you to enter that realm, and to bring Canadian history into the classroom.



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Food for Thought



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• Continued from page 19

On a national, regional or district-wide basis, the rule is slightly different. I've seen school boards or dedicated teachers build marvelously effective technology schools and/or classrooms that are model "schools of tomorrow," but require special budget allocations, or have to be run by the pioneering, brilliant and dedicated people who created them to be successful.

The rule, on a broader basis, is: if a technology is proven to be effective in helping teachers teach and students learn, and does so on a cost-effective basis, is it repeatable elsewhere? Can any teacher willing to learn apply it successfully within existing school budgets, or does it need specially dedicated and knowledgeable teachers, or classrooms that are rebuilt with equipment specified and paid for by grateful alumni who happen to be technical geniuses? If so, the technology may be a real boon, affecting more than the small number of kids who pass through the revolutionary classrooms. If not, well, it's interesting, and might conceivably lead to techniques that will later be of universal value, but isn't important now beyond the showcase classroom where it's used.

There's no doubt in my mind that technology can be a powerful, beneficial tool in the hands of teachers and school boards educated in its use, and I wouldn't want schools to use appropriateness as an excuse to keep doing things the same old way. But keep in mind that not every "educational" technology actually improves learning.

Richard Worzel is Canada's leading futurist. He is paid to speak to over 20,000 business people a year, but volunteers his time to speak to high school students. He can be reached at futurist@futuresearch.com.

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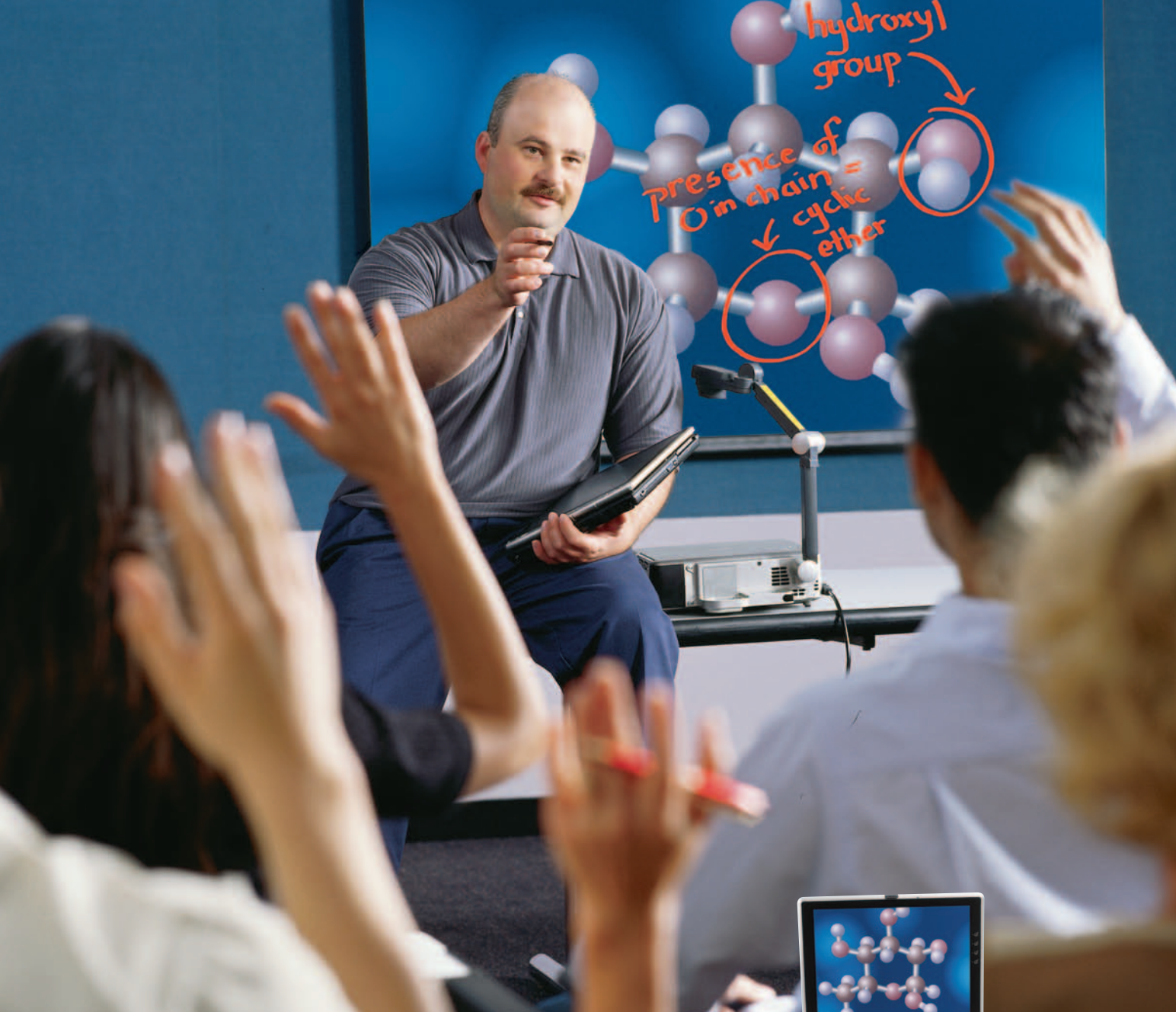
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