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*Using Visual Materials to Engage Learners ***

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Canada

Using Visual Materials to Engage Learners

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Abstract: The objective of the Spirit of Democracy international project is to enhance the capacity of civic educators in Russia to develop and sustain a dynamic and vibrant program of citizenship education. This goal is being met by providing online resources for teachers in Canada and Russia. The Spirit of Democracy project's learning approach is based on the ideas of Vygotsky and on the concepts of Situated Learning and Anchored Instruction. Within the Spirit of Democracy project developers create learning opportunities using situations and springboards. The uniqueness of the approach taken by the project is that researchers use authentic materials to engage students in learning and discovery. A very important role is assigned to visual materials. All visuals used in learning springboards can be divided into three categories: "real life" pictures, illustrations to create specific environments, and art masterpieces to attract and engage in discussions of democratic issues.

Introduction: Importance of Visuals in Educational Resources

"The world of just text is irrevocably dead" (ArtsEDNet, 1997). This statement belongs to Allen De Bevoise, one of North America's leading innovators in interactive technology. He is not the only digital media guru who supports this view. The director emeritus of the National Gallery of Art, J. Carter Brown, advisor and consultant to Bill Gates and the founder of the OVATION - The Arts Network - the premier provider of arts and cultural programming on US television also believes in the central place of images in education: " We are in a new age where the image can now be central, thanks to technology in a large part. Images are around us. Today, they have the potential to be as fundamental to education as words and numbers, adding significantly to the excitement, depth and relevance of what and how children learn" (ArtsEDNet, 1997).

Until quite recently, the publishers of instructional materials rarely used visuals due to the high cost of producing pictures as compared to textual materials. However, the cost of reproducing pictures is not a factor when the materials are distributed electronically, such as materials involved in computer-based instruction, Web publishing or CD-ROM – based materials (Morrison et al., 2001) The development of technological means for producing and manipulating visual information allowed wide-spread use of visuals in instructional materials. In order to fully realize the potential benefits of using pictorial information in teaching, it is necessary for pictorial presentation to be done well. "Unfortunately, much of this swing toward more pictorial treatments has not been informed by a principled understanding of how people learn (or fail to learn) from pictures. Rather, it seems to be driven largely by a mixture of naive intuitions about the instructional efficacy of pictures and the technical capacity to include them cheaply and easily" (Lowe, 2001, p. 202).

It is well known that vision, for humans, represents the richest source of information. Seeing and hearing, and particularly seeing, belong to so-called "far senses" that are crucially important in the human survival mechanism. It is well documented that, when compared to other senses, vision predominates them (Seculer and Blake, 1990).

There is a general belief that illustrated text is more conducive to learning. According to Levie & Lentz (1982), pictures help readers to better learn the illustrated textual information, but do not have any effect on the comprehension of the information that is not illustrated. As shown by Peeck (1987), visual images are particularly useful to illustrate the spatial relationships described in the text. " For example, in a text describing the relationship between the position of the moon relative to the earth and sun during a lunar eclipse, a picture of this spatial relations would benefit the reader. Pictorial representations are also beneficial when used to illustrate abstract material and the

main ideas in the text" (Morrison et al., 2001, p. 155). However, research shows that the most effective use of illustrations in learning materials is achieved when the learner interacts with the illustration, for example, by labelling parts of the picture, tracing the picture or answering questions about the picture (Dean& Kulhavy, 1981; Winn and Holliday, 1982).

Fleming & Levie (1978) report that print and pictures are available for processing longer. The implications of this are that print and pictures are more suitable for presentation of complex tasks that require prolonged attention (Fleming, 1987). Pictures are also better remembered than words (Gagne & Rohwer, 1969), which sometimes cause an undesired effect, when a picture gives too much information that is difficult to process.

There is an extensive body of knowledge on the general principles of graphic interface design and visual presentation in the graphic design field. Recently this knowledge was extended to include human computer interface and visual design principles for instructional multimedia (Misanchuk et al., 2000).

Using Visuals to Engage Students in Democratic Discussions

Brief Description of the Project

The Spirit of Democracy project is an international project that aims to strengthen the commitment to democratic ideals and institutions in Russia (The Spirit of Democracy, 2002a). It was initiated by the University of New Brunswick Faculty of Education Citizenship Education Research and Development Group in partnership with the Russian Association for Civic Education and Uchitelskaya Gazeta (an influential Russian School Teachers' newspaper). The project began in 2000 and was made possible through a financial contribution by the Canadian International Development Agency.

The objective of the project is to enhance the capacity of civic educators to develop and sustain a dynamic and vibrant program of citizenship education. This goal is being met through supporting teachers in Canada and Russia by providing resources and training that will assist them in engaging their students in a thoughtful consideration of the ideas that shape democratic societies.

To accomplish these goals, the principal focus of the project is on the creation of on-line citizenship education resources intended for use by teachers in Russia and Canada. The pedagogical approaches adapted by the project include blended learning, situated learning, and creative use of Web media and visual materials to effectively teach democracy on the Web.

The Spirit of Democracy project's learning approach is based on the ideas of Lev Semenovich Vygotsky who is widely known as "The Mozart of Psychology". Vygotsky, along with Piaget and Bruner, developed the foundation for the concepts of Situated Learning and Anchored Instruction (The Spirit of Democracy, 2002b). The Situated Learning approach is based on Situated Cognition Theory that suggests that learning is tied to authentic activity, context and culture (Brown et al. 1989): An authentic context for citizenship learning must be a situation in which "real" citizens might be required to think and to act. It can be current, historical, or both; it can be near or far in both time and place (Hughes et al. 2000).

Principles of Web Design and Vygotsky's Theory

Hung (2001) applies Vygotsky's theory to design principles of Web-based learning and establishes connections between principles drawn from Vygotskian thought and design considerations for Web-based learning. For example, he relates Principle A *"Learning is demand driven - dependent on engagement in practice"* to a requirement for a Web learning environment to have personalized content for the learner. Principle B *"Learning is a social act/construction mediated between social beings through language, signs, genres, and tools"* is related to such design considerations as social, communicative and collaborative dimensions of Web-based learning. Principle E *"Learning is embedded in rich cultural and social context – acquiring both implicit and explicit knowledge"* – Hung suggests that a Web-based learning environment should allow learners to access learning materials in the local context. Principle G *" Learning is to transfer knowledge from one situation to another, discovering relational and associated meanings in concepts"* is related by Hung to a Web-based learning environment that facilitates learning through observation of visual artifacts.

The above design considerations for Web-based learning closely coincide with the design methodology implemented by the Spirit of Democracy project. The project Web site provides personalized resources for Canadian

and Russian teachers and students (Principle A). Collaborative dimensions are addressed by providing a Discussion board for students and teachers (Principle B). The project Web site consists of two separate sites (Russian and Canadian) that provide resources based on the local context (Principle E), and visuals play a prominent role in the collection of the project's online learning resources (Principle G).

Using Visual Materials on the Project's Website

The Spirit of Democracy project is using the Web to deliver online resources: content, instructions, along with a discussion environment for teachers and students. These curriculum resources can be used as a complete set of materials or as individual lesson topics for different subjects such as Social Studies, History, Citizenship Education, etc. The Canadian and Russian project teams are developing project materials for similar topics based on local context. As a result, the information presented on the Canadian site is relevant to the lives of young Canadians, and the content on the Russian site may differ and is relevant to the lives of Russian students (Goldfarb & Kondratova, 2002).

Within the Spirit of Democracy project, developers, on both sides, create learning opportunities using situations and springboards (anchors). The situations present democratic issues and concepts, for example, the value of loyalty, the meaning of privacy, the freedom of religion, etc. The uniqueness of the approach taken by the project is that researchers use authentic materials to engage students in learning and discovery.

It is difficult to overestimate the importance of proper use of visual materials for this international project that involves Russian and Canadian participants. In Russian culture historically images always played of very important, central role. For example, in 17th-19th centuries icons were present in almost every Russian home, even the poorest ones. At the end of the 19th – beginning of the 20th century the Russian vanguard art movement revolutionized modern art. During the Soviet era propaganda media used the power of images to influence people's minds. And even today, in the age of television and mass media you can see huge lineups at the entrance of art museums and art shows in Russia.

All visuals used in the project's springboards could be divided into three distinct categories: "real life" pictures, illustrations (to create specific environment) and powerful art masterpieces (to attract and engage).

Visuals to Present "Real Life" Examples

To present "real life" examples that are used in class discussions, project teams are using photographs of real events, historical documents and artifacts. For example, one of the springboards of the Civil Disobedience topic, the "Self-Immolation", contains a shocking photograph of a real event of self-immolation performed by a Bhuddist Monk in Vietnam in 1963 (The Spirit of Democracy, 2002c). Another example would be a springboard on the same topic of Civil Disobedience. The "Emily Davison and the Derby" springboard tells the story of the most famous act associated with the Suffragettes movement. Emily Wilding Davison, a participant in this movement for women's right to vote, threw herself under the King's horse at the June 1913 Derby, in protest, and died (The Spirit of Democracy, 2002d). The story is told using the historical picture of the event and a photograph of the authentic 1913 police report (Fig. 1).
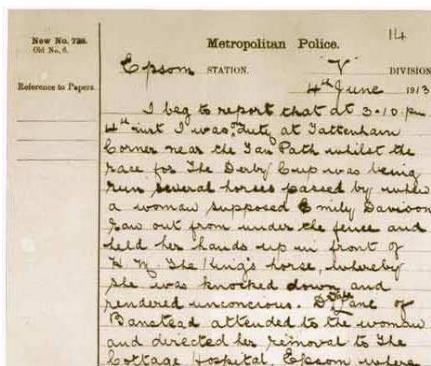

Figure 1: Copy of the police report

The use of photographs in these cases recreates "real life" events and helps students to relive the events, connect with them and create personal opinions. This goal is achieved by having authentic photographs with numerous historical details that help students to personally associate with the story.

Visuals to Create Specific Environments

In cases where springboards are required to immerse students in specific environments, the situation is usually presented to students by showing a sequence of 6-8 illustrations. These illustrations should be descriptive enough to tell the story and appealing enough to draw the students in to a discussion about a particular topic. To achieve these results, the project illustrator works closely with researchers to portray the situations they want to use.

The topic of "Privacy" is a good example of such joint work between a researcher and an illustrator. One of the scenarios dealing with the topic of "Legal Aspects of Privacy" involves a discussion on the case of unreasonable search and seizure (Mr. Bagnell's case). In the learning activity "You Be the Judge" students need to learn all the details of the case and make a legal judgment (The Spirit of Democracy, 2002e). The factual materials of the case are presented as a series of illustrations that lead students through the sequence of events of the actual case (Fig. 2). One of the important conditions of this activity is to create an illusion of the court environment and help students experience the process of rendering a fair judgment. The use of visuals here is much more appropriate than the use of newspaper or magazine articles. Such articles usually contain judgmental opinions that may influence students' decisions one way or another.

1. WAITING FOR POLICE TO ARRIVE 2. INSIDE THE POLICE CAR 3. WAITING AT THE HOSPITAL 4. ASKING PERMISSION

5. SEEKING INFORMATION 6. SEARCHING THE BACKPACK 7. THE EVIDENCE 8. ARREST
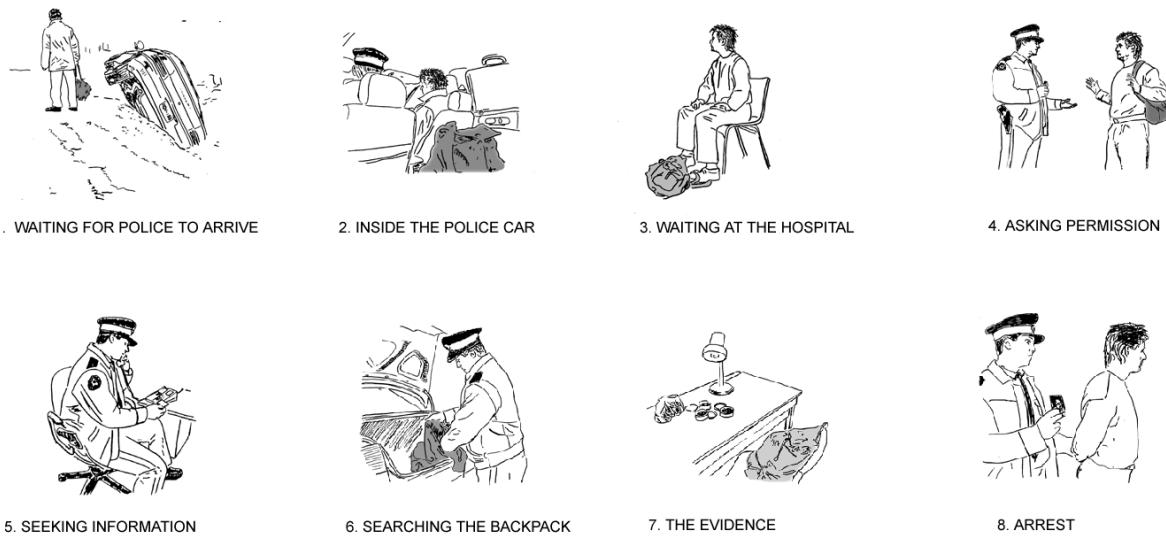
Figure 2: Mr. Bagnell's case

The researcher needed to spend a considerable amount of time working with the illustrator on the details of each scene, making sure that it properly presents all the facts of the case without any additional visual information that might influence students' opinion. In this particular case illustrations are much more appropriate than photographs of actors playing roles in recreations of real events.

Another set of illustrations was created for the "Images of Chile" springboard that is used to initiate students' discussion about "due process" and, in particular, human rights violations as one of the most important aspects of this concept (The Spirit of Democracy, 2002f). Working closely with a researcher, an illustrator portrays the story of a person missing after a confrontation with Chilean police. Students are presented with carefully designed illustrations and asked to discuss what fundamental rights have been violated, how the due process of law

could be properly applied in this situation, and what are the basic differences between a democratic country and dictatorial regime. The visual story is supported by several hyperlinks to the Amnesty International Web site with articles about human rights violations in different countries such as Cuba, Guatemala, Bosnia and to the UN's Commission on Human Rights Web site.

Visuals to Engage Students

To engage students in discussion of citizenship issues project developers use a technique borrowed from the advertisement industry – creating an emotional appeal to the story that is directed towards the student's feelings and focuses on emotions such as fear, joy, pride, vanity, and love. By using images of famous paintings in the context of springboards researchers attract students' attention to controversial issues and create follow up activities that involve students in making decisions and taking sides in passionate discussions.

An example of this type of activity is the "Rokeby Venus" springboard portraying Mary Richardson and her most famous militant act. Mary Richardson took an active role in the Suffragettes movement in the beginning of the 20th century. In protest against the government's treatment of a fellow suffragette leader Mrs. Pankhurst, she slashed with a small axe, the Rokeby Venus painting in the National Gallery in March 1914. The springboard (The Spirit of Democracy, 2002g) contains a photograph of Mary Richardson, authentic documents about the case and a picture of the "Rokeby Venus" painting. The contrast between the beautiful image of Venus on the painting by Velasquez and the violent act of protest against the government by slashing the painting with the meat chopper engages students into the discovery and thinking process about one of the extreme acts of civil disobedience.

One more example of using images of art masterpieces, creatively, to engage students in discussion about democratic issues, like "Freedom of religion", is an interactive presentation of the famous Russian painting "Boyarynya Morozova" by Surikov (The Spirit of Democracy 2002h). In this painting, the artist depicts Feodosiya Morozova, who was an active supporter of the old-believer movement in the Russian church, and a crowd made up of vivid individuals that watch her being sent into exile for her religious beliefs (Fig. 3). The image map of the painting is hyperlinked to the close-ups of the individual characters portrayed by the painter (Fig. 4). During the class discussion the teacher can, using this interactive image, focus student's attention on different human faces in this complex masterpiece portraying a whole range of attitudes towards religion. This approach helps to initiate a group discussion about a real historical event and how different people with their own beliefs and values view this event.
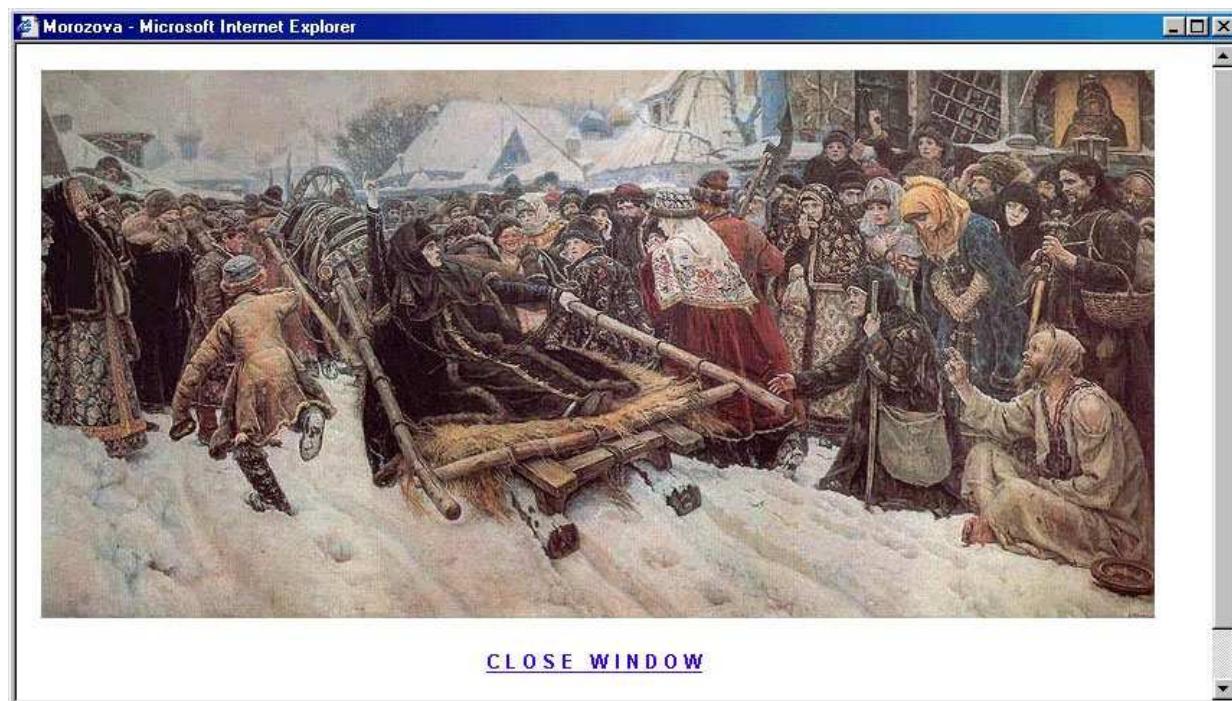
Figure 3: Painting "Boyarynya Morozova" by Surikov
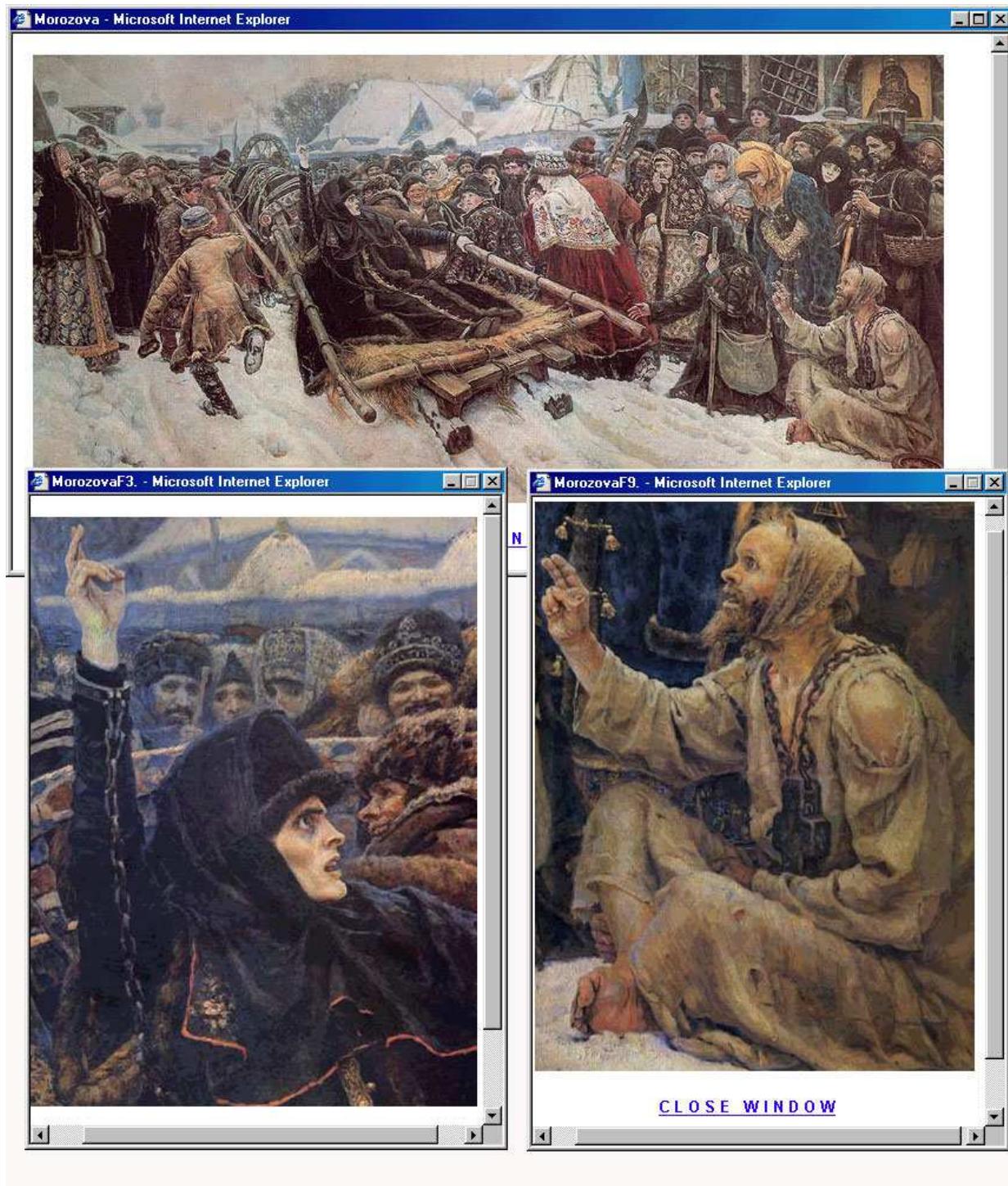
Figure 4: Painting "Boyarynya Morozova" - close-ups of the individual characters

Conclusions

The design approach adapted by project for creation of online learning resources is based on principles drawn from Vygotskian thought. The project is using authentic materials to engage students in learning and discovery. A very important role is assigned to visual materials that are used to present real life examples, create specific environments to facilitate the thinking process, and to engage learners in thoughtful discussions.

Today we can already call this project a success – the Russian team have developed and posted on the project Web site about 60 different topics related to citizenship and democracy, and the Canadian team posted about 30 such topics. Researchers and teachers develop these topics collaboratively. Project materials posted on the Web have already been successfully tried by Canadian and Russian teachers in a classroom environment and received positive responses. Today many participating Canadian and Russian schools are, on a daily basis, using the project's Web-based resources to conduct classes and educate youngsters on democratic values and the spirit of democracy.

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