Map-Centered History Teaching

Exploring the History of Loyalist Migration to the City of Fredericton through Web Maps

Main Collaborators

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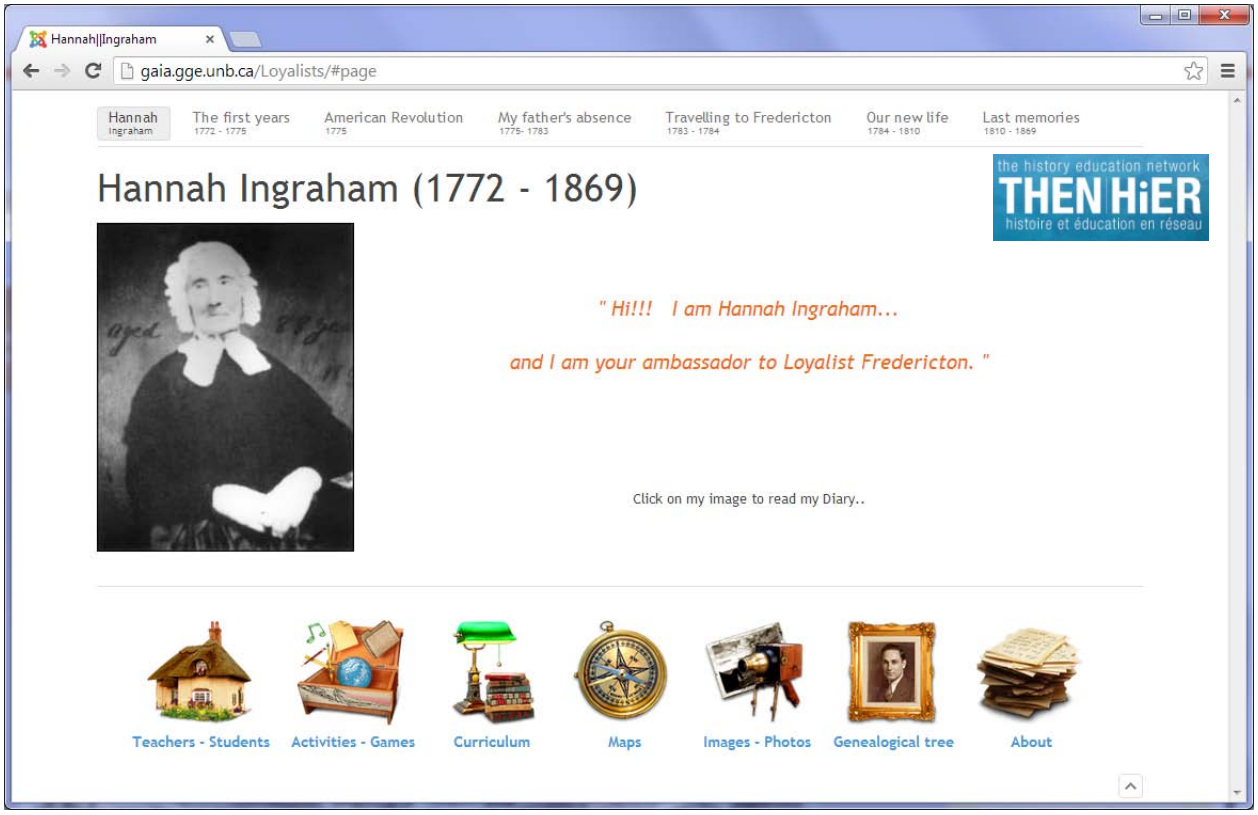
The collaborators are drawn together from three different disciplines, each of which has a seminal role to play in teaching the public about the past. Dr. Stefanakis comes from Geodesy and Geomatics engineering, and has constructed numerous applications relating school history curricula in Greece and in Canada, mapping, and technology. Dr. Huskins comes from History, and has been conducting research and engaging students with the study of Loyalist history, particularly with respect to Loyalists' settlement in Atlantic Canada. Dr. Christou comes from Education, where his research and instruction involve the history of education as well as the teaching of history. This collaboration afforded opportunities to collaborate and bring together graduate student researchers from different spaces.

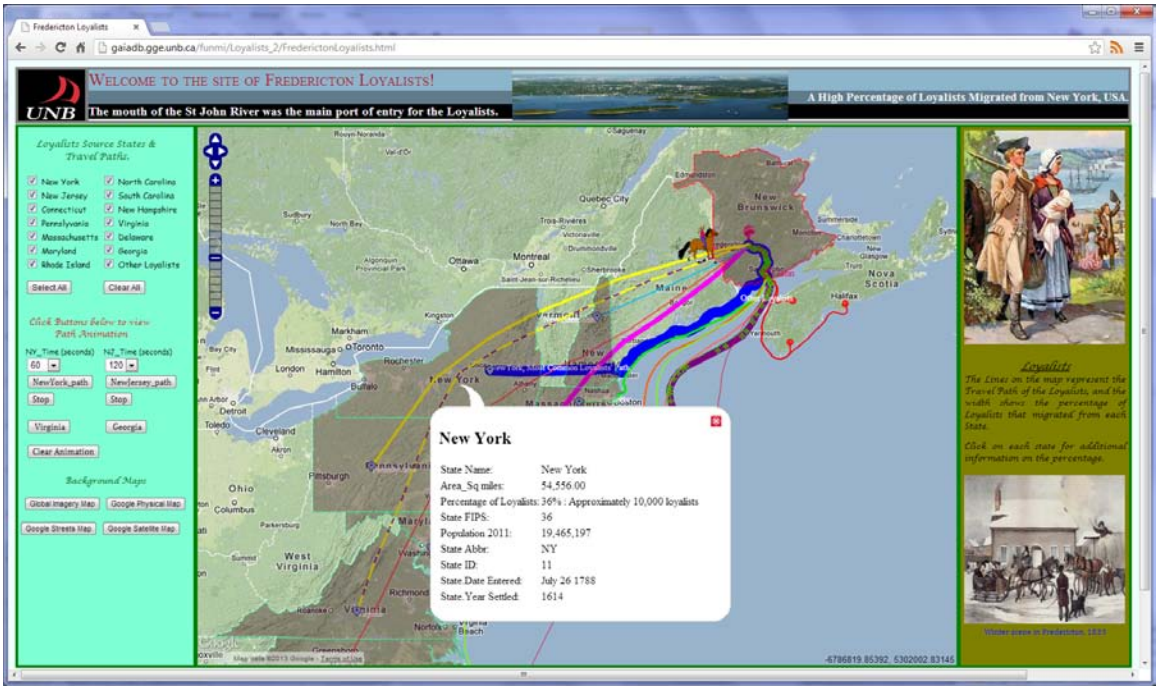
The application is freely accessible to the public, and it is hosted on the University of New Brunswick servers at the following location: http://gaia.gge.unb.ca/hannahsworld



Objectives

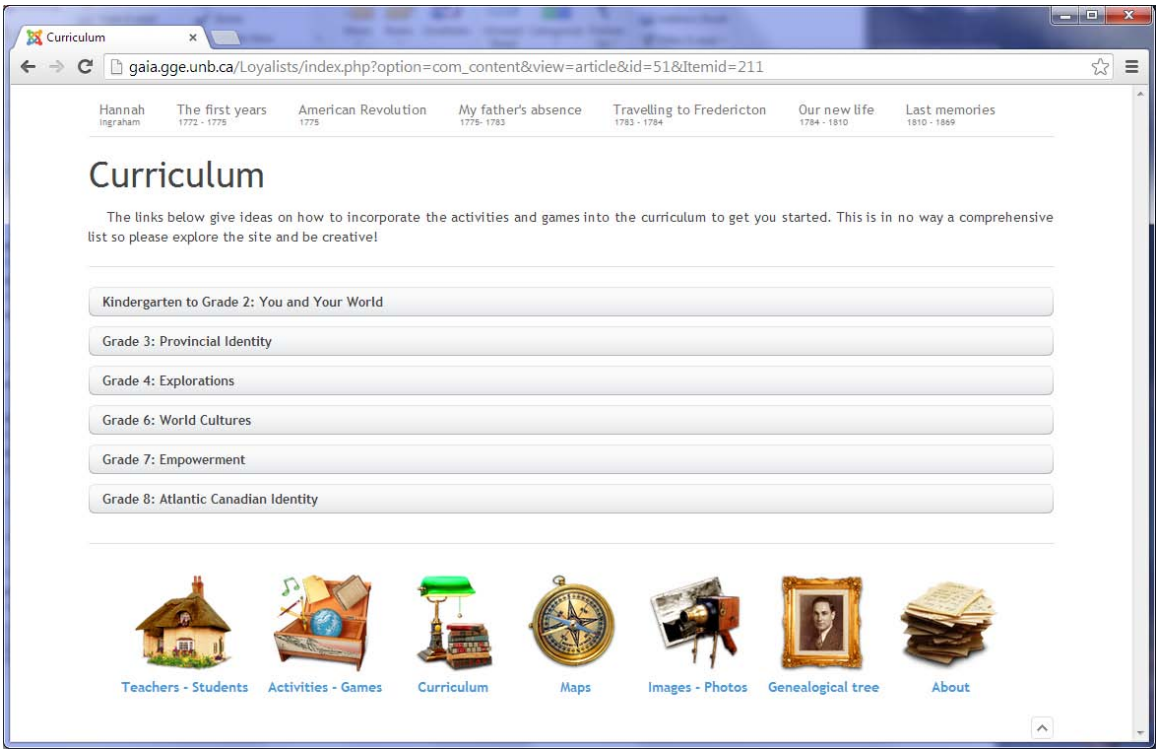
Maps, while recognized as "the most important tool in geography" (Griffin, Andrew, and Taylor, 2008), are also a popular and effective resource for teaching history. Bahbahani and Case (2008) have drawn our attention to the ways that the historical thinking concepts developed by the Historical Thinking Project can be seen as "portals to geographic thinking" (p. 108). This project concentrates on geography and mapping as s means of cultivating historical thinking. Through map visualizations students and teachers can explore and study complex movements and concepts, which include settlement and migration patterns, the importance of physical boundaries and geomorphology, and the diffusion of goods and ideas. Such exploration can dovetail from and relate to each of the six historical thinking concepts. Despite their significance in learning, maps are usually missing in history teaching. This is mainly because the generation of map visualizations is a time-consuming and expensive process. The compilation of a map usually involves high-qualified personnel (cartographers or map makers), and input data (such as background map layers) is not always available or costs much.

Over the last few years, this situation has changed rapidly. The technologic evolutions in online mapping offer the possibility to build effective educational tools with limited efforts and investment. A wide bunch of efficient and easy-to-use software tools are available to the developers. Many of them are also free-to-use (open source) and offer a competitive functionality to commercial systems. Likewise, the availability of data has also exploded. Background map and image layers for the whole planet, in high resolution, are easily accessible and in most cases freely accessible. Additional data can be combined with these layers to generate what is referred to as *map mashups*.



A vast range of applications to all geographic domains (such as marketing and ecology) are currently built as map mashups and are available to web users. The educational uses of map mashups are emerging rapidly as well. Maps are useful in any subject, particularly geography, history, social studies, science, and even in math and language. We wish to explore the pedagogical possibilities that mashup technologies offer students and teachers of history.

With this project, we initiated research on the usability and effectiveness of map mashups in history teaching. The research will exploit the expertise of the applicants in both: (a) developing educational map mashup applications; and (b) teaching history in Canadian Schools. A prototype map mashup application running on the web will be designed and implemented as an educational tool for exploring the history of the city of Fredericton, with special focus on the Loyalist settlement of the city and its surrounding areas. This tool will serve social studies educators at each level of schooling (elementary, intermediate and secondary), relating to the Social Studies curriculum and enabling developmentally appropriate learning scaffolds. Teachers, teacher candidates, and students will evaluate the content and functionality of the tool. The tool will be developed as a prototype framework for teaching history using map mashups and will be easily customizable to alternative content.



2. Methodology

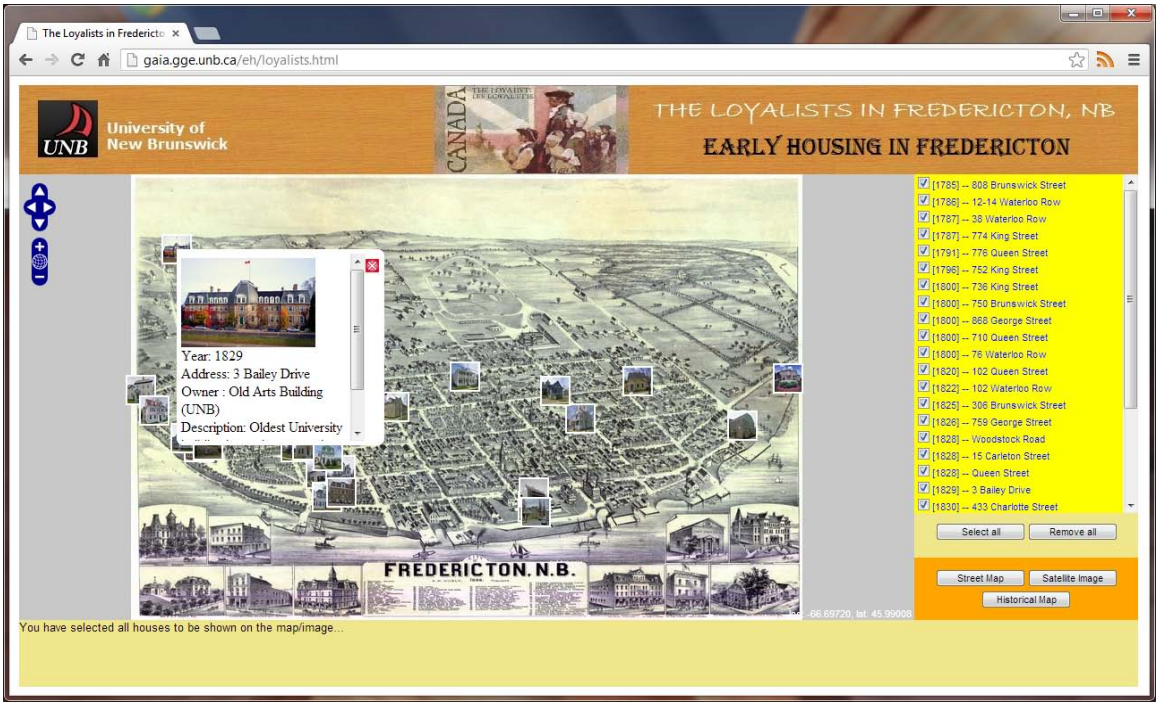
2.1 Extensions to the Existing Research through this Project1

The research focused on the development of a map mashup application running on the web for exploring the history of the City of Fredericton, with special interest to the period of Loyalists. This prototype now serves as an educational framework to enhance history education within the context of the province's social studies curriculum using interactive map content. It customizes and extends both the content and functionality of the prototypes already developed. We believe that this project will be of interest not only to schools, but also to local and provincial museums (including the York-Sunbury museum and King's Landing Historical Settlement).

The development of the new prototype had two main challenges for the research team:

(a) It had to be aligned to the educational approaches of the schools in New Brunswick and Canada. The previous prototypes have been developed to assist the needs of schools and museums in Greece. The educational methodologies in Canada are quite different, with provincial curricula and an assortment of textbooks, atlases, resources, and aids developed by various publishers, rather than one national curriculum that is yoked to authorized textbooks and national examinations. The prototype relates to the provincial context in order to be of use to local teachers and students within the province, who are working with the New Brunswick Social Studies curricula. The research team had a clear view of these needs and built bridges between the resource and curriculum outcomes.

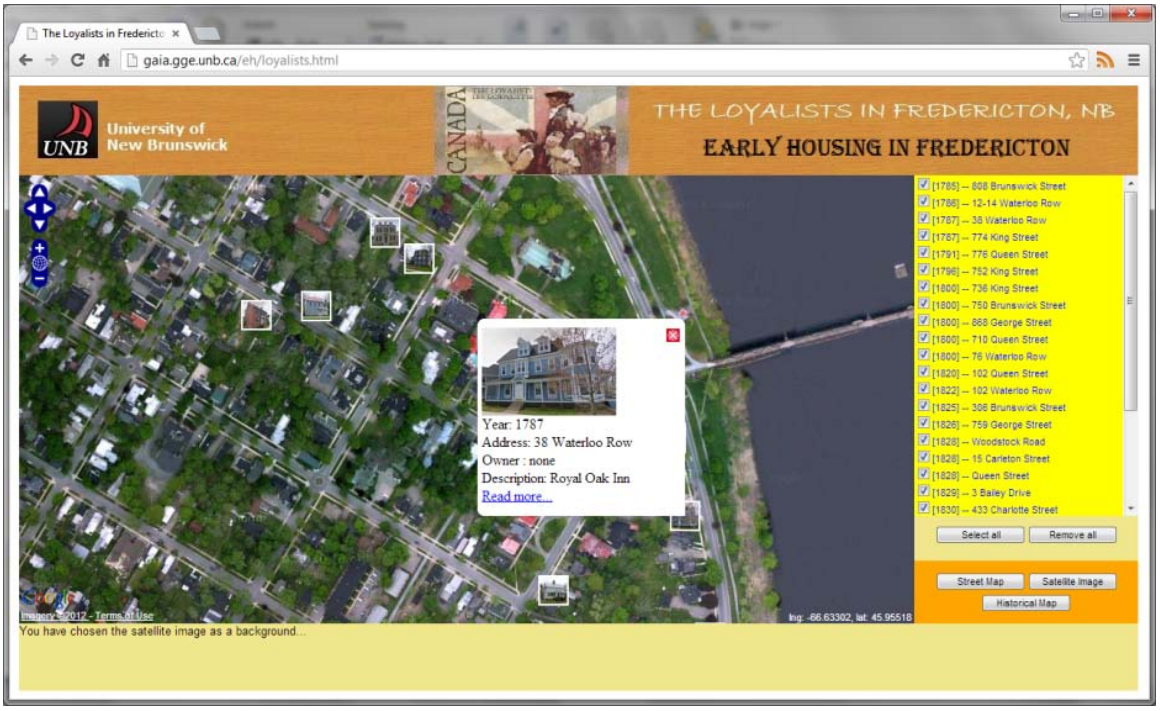
(b) The application relates to a large-scale map (at a city level). Previous prototypes were built on top of much smaller scale maps, such as the Aegean or Mediterranean Sea. The completed project refers to a significant larger scale delimited by the City of Fredericton. This raised a number of technical and conceptual novelties in the design and implementation of the prototype. For instance, with a small-scale map, the use of a layer from a contemporary earth image provider (e.g., Google Maps) is acceptable because human developments (cities and roads) are not visible. This is not the case in a large-scale map. This concern was overcome technically.



The development of the project consisted of the following actions:

1. Collaboration and discussion with teachers at all three levels of K-12 (elementary, middle and high schools) in Fredericton (School District 18) as well as with teacher candidates in the Faculty of Education at the University of New Brunswick the Directors of local museums. The purpose of this collaboration will be to explore how the topic "The history of the City of Fredericton and the Loyalists in New Brunswick" fits within the context of the provincial curriculum, as well as present programs and existing courses;
2. Collection of the material from various sources (New Brunswick Provincial Archives, University of New Brunswick Archives, City Hall, City Libraries, King's Landing Historical Settlement);
3. Processing the material, and generation of appropriate graphic and thematic content for the prototype;
4. Collection and customization of background maps and images for the map mashups;
5. Development of the prototype;

6. Evaluation of the prototype by teachers, students, and teacher candidates at the University of new Brunswick (presentations in class included);
7. Revision of the prototype based on the feedback from teachers and students;
8. Development of educational activities that link to the Big Six historical thinking concepts;
9. Integration of the activities with the New Brunswick Social Studies curriculum;
10. Research on the life of Hannah Ingram, whose story became the principle medium through which the historical exploration of loyalist settlers to Fredericton, NB is curated.

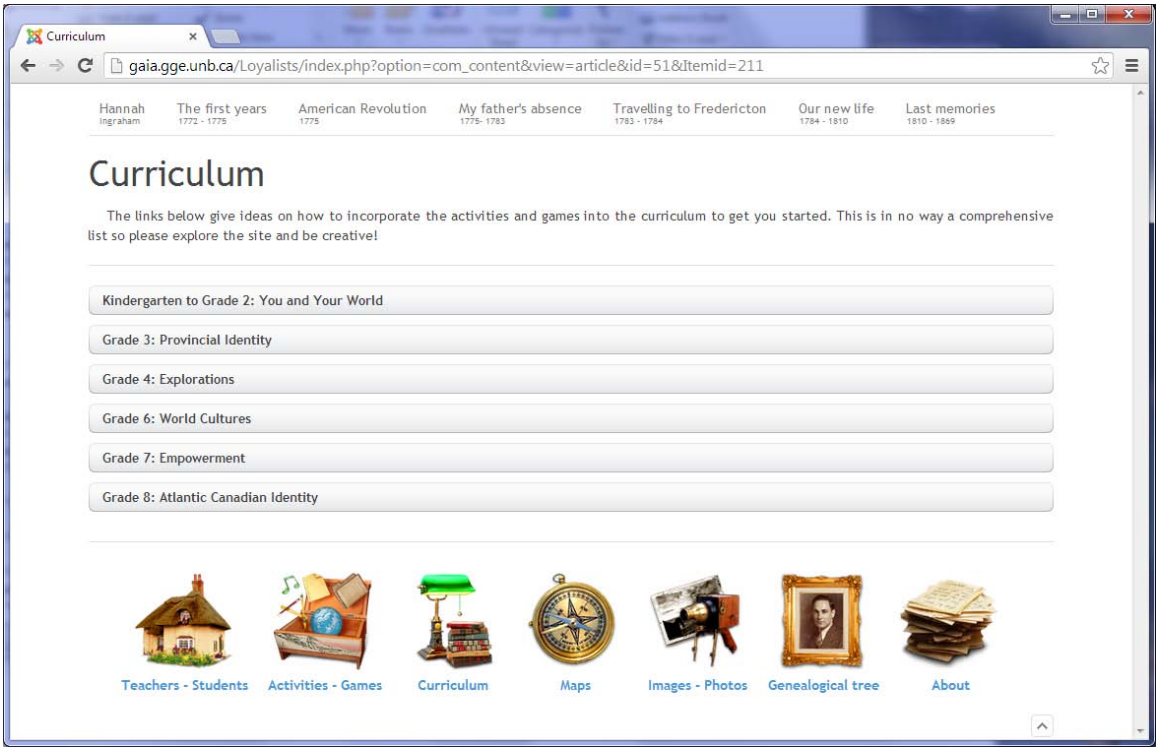


As noted, the development of the prototype aligns with the historical thinking concepts. This relates to process as much as it does to product. Specifically, the main collaborators cooperated closely with the District 18 teachers. Action 1 clarified what is important for the NB students to learn (Historical Significance) at the three levels of K-6 framework. In Action 2, the collection of the material considered the sources of evidence along with the sources of information (Evidence). In Actions 3 and 4, the processing of all collected material and the design of the prototype functionality (scenarios) highlighted the concepts of continuity, change, cause and consequence so that students can get a richer understanding of the history of loyalist communities in Fredericton (Continuity and Change, Cause and Consequence). The comparison of the past with the present and the visualization of the units and events on top of contemporary backgrounds will motivate interesting thoughts and discussions related to both the historical perspectives and ethical issues.

3. Results and Implications of Research

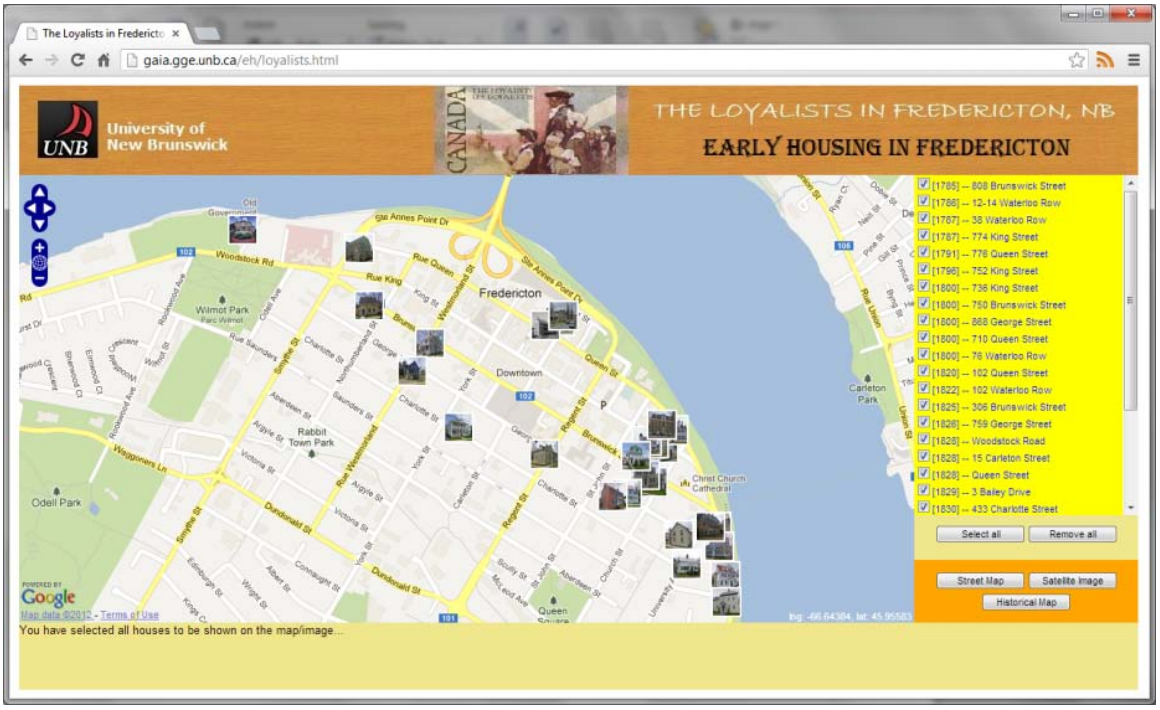
The results of the research include:

a) Exposure of teachers, students, and museum educators to the use of map mashups in history and in Social Studies education;
b) The development of an application that can be used in the province's schools and museums, particularly in the locals school district; and
c) The development of an innovative educational framework that will be easily customizable to alternative content.
d) Collection of images of Loyalist buildings in Fredericton.
e) Interactive maps that overlay historical maps on top of current ones.
f) Development of educational activities related to historical thinking and to New Brunswick curriculum.
g) Infusion of story-telling into historical narrative of the loyalists through the concentration on Hannah Ingram.



The research and the results are models demonstrate the potential for long-term research on the adoption of modern map technologies as a basic resource and tool in history and social studies education and other related subjects at a national level in Canada. Such work can bring together teachers, teacher candidates, school district and Ministry consultants, museum educators, historians, and geographers to develop a project that can be used freely in the local context, across the province, and throughout the country.

The prototype content and functionality was designed and implemented to fulfill the need of the District 18 Schools at the three levels of K-12 framework. The application is available in digital form and freely accessible to the public. It highlights detailed instructions of use for both teachers and students as well as with some supplementary activities (quizzes, games, etc.) to do in-class or at home. The classroom must be equipped with a PC/Laptop computer and an LCD projector or Smart board. The students will be able to also access the application and the activities from their computer at home. Explicit links to the New Brunswick Social Studies curricula, as well as cross-curricular links are made in order to facilitate the implementation of this resource in the classroom.



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