ABSTRACT
This poster presents empirical findings on gender differences during an inquiry-based learning history project at the middle school level. Weekly surveys during the project designed to solicit cognitive and affective responses from students’ as well as demographic surveys and exit surveys were conducted. Overall the results show that boys are more confident than girls during inquiry-based learning while girls feel more confident, sure and satisfied than boys after the project is completed. Although only the confidence level of boys and girls will be discussed here the results show that gender analysis is essential to understanding how preteens seek information. This poster is an exploration of new and promising work on the topic of gender, preteens and inquiry-based learning.

Keywords
Gender differences, inquiry-based learning, information seeking behaviour.

INTRODUCTION
Since 2011, a team of researchers from McGill University has been observing and interviewing grade eight students completing a history project in a private school in Montreal. The goal of the study is to design a virtual information literacy (IL) tool intended to improve information seeking process of middle school students. In the course of this research, however, several observations on gender sparked this researcher’s interest. For instance, when the students were conducting online research, boys were intensely clicking on every link available while girls were diligently reading every detail.

After finding out that these observations are corroborated in the literature a question was generated:

- Are there gender differences during an inquiry-based learning project at the affective level in middle school’s students?

BACKGROUND
Several studies have noted that gender does influence the information seeking behaviour of youth and is an important factor in student learning in a classroom setting. These studies mainly related to information seeking on the web which is closely related to the topic at hand.

For example, Burdick (1996) examined the thought processes and feelings of 103 boys and girls in grades 10-12 while they were completing a school project. The results show that girls are more likely to work together, talk to friends and family for help, and feel optimistic at the beginning of a project but lack confidence in their abilities. Boys on the other hand put emphasis on information gathering and completion and were more detached from their topics.

A study by Martin (1998) notes the co-operative behaviours of girls and their higher enthusiasm about the imposed school task. Martin looks at same-sex team working on a school project in grade four which included 19 girls and 11 boys. She notes that girls’ team have a more co-operative behaviour while boys’ team are competitive to the detriment of the non-dominant partner.

In a related study, Large, Beheshti and Rahman (2002) conducted their research at an elementary school with grade six students. Sixteen same-sex groups of two or three were observed working on a collaborative school assignment. It was noted that boys were more active online, used fewer words to formulate queries, clicked on more hypertext links and spent less time per pages per minutes than girls. These findings suggest that boys and girls do not use the same online search strategies therefore demonstrating overall that
boys’ and girls’ academic search behaviour differ while working in same-sex team on a Web-based class project.

In this poster, our objective is to investigate the affective differences between boys and girls during an inquiry-based learning project. Burdick (1996) noticed that girls compare to boys lack confidence in their abilities. Hargittai and Shafer (2006) studies also show that women tend to evaluate their online skills lower than men do, despite no apparent gender difference in the ability to find information. In Abbiss (2008) and Vekiri and Chronaki (2008) 9-11 year old boys have a higher perceived sense of computer self-efficacy than girls of similar age. Enochsson (2005) reported similar results regarding confidence; boys displayed their technological knowledge and used technology language more than girls, despite both boys and girls saying they had the same level of interest in technology.

**METHODOLOGY**

The data presented in this study related to the first year of our data collection (2011) at a private high school in Montreal, where the completion of a major history project is required from grade eight students. The project is grounded in inquiry-based learning which is a student-centered approach with students as active participants in the construction of their knowledge and teacher as facilitators of learning (Kuhlthau, Maniotes and Caspari, 2007). Out of five grade eight classes (13-14 years old) two were chosen by the teachers to participate in the project. All the students (n=44) in both classes participated in the research, including 18 (41%) girls and 26 (59%) boys.

The history project extended over a twelve-week period beginning in mid-February and ending in late May. The project consisted of a research on an historical topic of the students choosing, in groups or alone, culminating in an oral presentation. For the oral presentation students had a choice of the format like a play, a skit or a historical re-enactment and could use Power Point, multimedia, video or posters to embellish their presentation. They presented their final projects to their teachers, parents, and older students during a special evening in May.

A survey instrument modelled after Byron and Young’s (2000) ‘Process Survey’ and Kuhlthau’s (2004) research was designed to solicit cognitive and affective responses from students. The weekly survey was divided into 4 questions: the topic of the chosen project; the students’ feelings (from a selection: confident, disappointed, frustrated, relieved, sure, confused, doubtful, optimistic, satisfied, uncertain and others); the students’ confidence level (on a ten point scale) and the students’ thinking process (from a selection of 19 questions). Two research assistants participated as observers in every class that was designated for the history project, and administered the weekly survey at the beginning of each class. A demographic survey was also distributed at the beginning of the project and an exit survey was administered after the project was completed.

**RESULTS**

**Gender-specific differences in confidence level**

The students’ confidence level was high throughout the project with the average answer to the third question “On a scale of 1 to 10 indicate your confidence level at this point in the project” of 8 (boys and girls confounded). Girls’ confidence level throughout the twelve weeks project was, however, significantly lower than boys (F=14.999, df=1, 40; p=0.009) (Figure 1).

![Figure 1. Gender difference in confidence level (weekly survey aggregated)](image)

On the other hand, in the exit survey, distributed the week after the projects were completed, girls felt slightly but not significantly more confident than boys. At the question “from the adjectives below, check\(\sqrt{\}\) those that describe how you feel at this point now that you have completed your project” 83% of girls chose confident versus 58% of boys (F=3.086; df: 1,40; p=0.087). It is also interesting to note that 78% of girls chose satisfied versus 50% of boys (F=3.484; df:1,40; p=0.069) and 72% of girls chose sure versus 38% of boys (F=5.371; df:1,40; p= 0.026) from the same selection as the weekly survey (Figures 2, 3 and 4).

Further analyses of our data also show gender differences on the frustration and optimism level of boys and girls. As the results in Table 1 indicate, during the inquiry-based learning project boys were more confident than girls. However, girls were more optimistic than boys and felt less frustrated than them.
CONCLUSION
This poster presents in-progress research investigating gender differences at the affective level in inquiry-based learning. The results show that during the course of this history project boys have a higher confidence level than girls. This is in accordance with previous research on preteen’s confidence level. However, during the course of the project girls seem to be more optimistic and less frustrated. Once the project is completed, girls are more confident, sure and satisfied than boys with their experiences.

In order to instruct students and create information literate life-long learners, it is important to be able to understand the factors that influence students’ learning. The results imply that gender is an influential factor in information seeking behavior of preteens. Hence, additional research should be compiled from a gender perspective in order to paint a more complete picture of gender differences in inquiry-based learning.

AKNOWLEDGEMENTS
The research in this study was funded by the Social Sciences and Humanities Research Council of Canada (SSHRC). We would like to thank all the student volunteers and the teachers for participating in this research.

REFERENCES


