To cite this work:

Note: the masculine gender has sometimes been used in this text solely in order to simplify the reading.

Translated from the original French by Margaret McKyes
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1. INTRODUCTION

The WIGUP project made an especially appealing research topic because its aim is to promote the growth and development of youth through community engagement. The WIGUP initiative also sparked my curiosity because it encourages the use of technologies and at the same time raises students’ and teachers’ awareness of the skills they will need for the 21st century, with an emphasis on entrepreneurial skills, which few initiatives have addressed. This despite the fact that several studies have clearly demonstrated that entrepreneurial skills can foster academic motivation and achievement.

Accordingly, my Canada Research Chair team and I decided to conduct an exploratory study. One of the aims was to deepen our understanding of the impacts of the WIGUP project, including the benefits and challenges for participating students and teachers.

We begin with a brief overview of the WIGUP initiative. We then present the overall and specific objectives of this exploratory study. To provide a better understanding of the relevance of this project for students, teachers, schools, and society at large, the contextual elements are presented in three sections: technologies in education, skills for the 21st century, and entrepreneurial skills. The research methods are then presented, followed by the main research findings. We bring this summary report to a close with a few conclusions and recommendations.
2. WHAT IS WIGUP?

WIGUP stands for “While I grow up.” Available at the website WIGUP.tv, it describes itself as a “Creative Social Network for Schools.” It is designed to inspire creativity and self-discovery in youth aged 9 to 14 years so they can “become who they really are,” and at the same time encourage them to acquire what they call “skills for the 21st century” as well as entrepreneurial skills.

WIGUP’s primary mission is to offer youth from 9 to 14 years old the “best online educational content in personal growth and character development,” in order to “help them find their voice and mission in life.” This “humanistic” initiative is funded by several partners and the personal contributions of a highly committed team.

The WIGUP provides an explanation of its philosophy, principles, and mission, as well as information on its team and its partners. Thus, WIGUP is an “interactive, immersive online site,” with the aim of helping 9- to 14-year-olds make individual journeys of self-discovery: to find out “who they really are.” The underlying philosophy is to honor the unique contributions of each child for the “betterment of the world.” WIGUP believes in the unique voice of each child, and in children’s right to contribute that voice for themselves, with the ultimate aim of world betterment. Therefore, WIGUP inspires children to “imagine what they could do to make the world better.” In this way, WIGUP encourages children to fulfill and grow their potential. WIGUP is also committed to reflecting diversified cultural identities, which support character development and stimulate reflection and a sense of accomplishment. The overarching goal is to “promote the interconnection between youth [ ... ] across all continents.” The WIGUP site therefore provides an international showcase where students can share exciting new projects that reflect their individual uniqueness.

WIGUP is a safe social network that offers a variety of resources so that students can use the space to create their own innovative projects. WIGUP also helps introduce technologies into teaching so as to “revolutionize classroom dynamics and respond to students’ needs.” It provides an Internet channel to allow children from around the world to share their content, with many of its resources based on actual experiences and stories. WIGUP also broadcasts live local news to broaden students’ awareness of what is happening elsewhere across the globe.

In summary, WIGUP can inspire students to share, be creative and innovative, and discover their individual self. As a Creative Social Network for Schools, it can foster students’ interest, motivation, and engagement at school and help them develop skills for the 21st century.

The site is accessible to teacher, students, and their parents, at school and at home. The site resources can be used as inspiration for “captivating educational pavilions” and to “create innovative projects that make a difference in their communities” and around the world. In addition to the live broadcasts from diverse locations, the WIGUP.tv platform provides over 1000 videoclips, interactive whiteboard apps, Web interviews with famous people, and more.

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3. OBJECTIVES

The overall objective of this study was to understand the diverse impacts of the WIGUP project, including the benefits and challenges for students and teachers who participated in WIGUP initiatives.

This study also addresses three specific objectives. We aimed to:

1. Better understand WIGUP’s impact on students’ development of skills for the 21st century.
2. Better understand WIGUP’s impact on students’ development of entrepreneurial skills.
3. Better understand WIGUP’s impact on students’ development of technology skills.

2 The skills for the 21st century are presented in Section 5 of this report.
4. TECHNOLOGIES IN EDUCATION

Technologies constitute a central aspect of the WIGUP projects. It would therefore be relevant to investigate how these technologies can play a central role in students’ academic success.

In the space of a few short years, classrooms throughout Canada have undergone a metamorphosis. It can be difficult to remember that just 15 years ago, there was no Google. Now we are racing along a speedway of rapid changes, changes that young people have emphatically embraced. Youth are poised to play an increasingly influential role in all areas of life: they are changing how societies evolve on every continent, with huge impacts on the economic, social, and cultural spheres. As technologies change, so does everything else: our lifestyle, work, social life, and education. Moreover, besides their supreme efficiency for information sharing and communication, people are rapidly catching on to the educational potential of technologies, especially when they realize that they allow students to enjoy doing their schoolwork. For the OECD, technologies represent the “very future” of education worldwide. Furthermore, given the omnipresence of technologies in our daily lives, it becomes ever more critical for students to master them if they are to succeed academically. In our opinion, this underscores the relevance of the WIGUP project: there is every reason to believe that being able to use a variety of technologies in order to self-learn, self-inform, and communicate will from now on be an essential prerequisite for adapting to a world in permanent flux and for fully partaking in society as an engaged citizen. These recent technosocial changes require us to reconsider the concept of the digital divide. Originally, the term referred to unequal access to technologies, but it is increasingly understood as inequality of skills in emerging technologies, between those who can use them to their advantage and those who must submit to them. The WIGUP project therefore appears liable to help students succeed in their education. Furthermore, we believe that knowing how to use technologies to learn is a key requirement for all young and not-so-young people to succeed in their schooling, and more broadly, make their way in today’s knowledge society.

It is noteworthy that recent studies have explored the question of whether technologies themselves have had impacts on education, as if classroom computers possess a “magical” effect that makes students learn more, better, and faster. Many researchers, including David Jonassen in his article, “Computers as mindtools for engaging learners in critical thinking,” have claimed that technologies have the power to make students learn even in the absence of teacher interventions. Other authors hold a diametrically opposed view. For example, in 1999, Thomas Russell produced a book called The No Significant Difference Phenomenon, in which he reviewed 355 studies in support of his theory that technologies have no impact on teaching or learning.

Today, according to the current literature in the field as well as numerous studies that we have conducted in schools over the past 15 years, the issue of whether or not technologies can impact education no longer arises. The question now is rather how can information and communication technologies (ICT) be used to make a greater impact on youth engagement? In other words, although technologies possess enormous potential for positively affecting students’ school engagement, what

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counts—across the board—is how teachers apply these technologies. Accordingly, the primary research focus in the educational use of technologies is how to effectively realize their educational potential. We believe that the WIGUP initiative promotes positive and productive uses of technologies, notably by encouraging students to develop their skills.

In previous studies (see Karsenti & Collin, 2012, 2013a, 2013b, 2013c, 2014d; Karsenti & Fiévez, 2013a, 2013b, 2013c, 2014; Karsenti & Lira, 2010, 2011a, 2011b, 2011c; Karsenti & Villeneuve, 2014), it was rather ingenuously assumed that the mere presence of technologies in the classroom would foster student engagement. This has proven to be only partly true. When technologies are used in less than optimal ways, students either become less engaged or they have fun with their devices, but they do not learn. This is a critical finding. The integration of ICT into education must be fully aligned with the school’s mission, which is to instruct, socialize, and qualify students. Technologies should not be allowed to warp the educational vision: instead, they should be used more appropriately.
5. SKILLS FOR THE 21ST CENTURY

We retrieved a total of eight main references addressing the skills and competencies that need to be taught in schools to equip students for life in the 21st century (see Voogt & Pareja Roblin, 2012). As a testament to the keen public interest in what are considered 21st century skills, three of these references were produced by world-renowned organizations: UNESCO, the OECD, and the European Union. The remaining reviewed references were produced in Australia and the United States.

Main references addressing skills for the 21st century:

1. 21st century skills and competences for new millennium learners (OCDE)⁶
2. Key competences for lifelong learning (European Union)⁷
3. UNESCO ICT: Competency Framework for Teachers⁸
4. Assessment and Teaching of 21st Century Skills⁹
5. Partnership for 21st Century Skills¹⁰
6. enGauge¹¹
7. National Educational Technology Standards (NETS)¹²
8. Technological Literacy Framework for the 2012 National Assessment of Educational Progress (NAEP).¹³

The concept of skills for the 21st century remains polymorphic, not to say polysemic. Nevertheless, Voogt and Pareja Roblin (2012) identified the following eight main skills or competencies that are addressed in the above-mentioned works:

1. Collaboration
2. Communication
3. Information and communication technology (ICT) skills
4. Social, cultural, and citizenship skills
5. Creativity
6. Critical thinking
7. Problem solving
8. Ability to develop and produce quality products.

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⁶ http://www.oecd-ilibrary.org/content/workingpaper/218525261154?site=fr
⁹ http://atc21s.org/index.php/resources/white-papers/
¹¹ http://pict.sdsu.edu/21st.html
¹² http://www.iste.org/about-iste
We then attempted to identify these eight skills in association with the WIGUP project.

Other skills are mentioned as well, but less often, including learning ability, autonomy, planning ability, flexibility, adaptability, and conflict resolution.

**Given top priority in most of these references are ICT skills.** Referred to in general as “technology skills,” they fall into three main categories:

**Information literacy** refers to the capacity to 1) access relevant information efficiently, 2) evaluate the information using a critical approach, and 3) use the information appropriately and creatively.

**ICT literacy** refers to technical knowledge that allows the use of ICT. It can also be understood in the broader sense of the use of digital technologies, communication tools, and/or networks in order to access, manage, integrate, evaluate, and create useful information in the knowledge society.

**Technological literacy** refers to technological knowledge that allows understanding and using ICT in order to resolve complex problems or to create products and services that respond to the needs of the knowledge society.
6. ENTREPRENEURIAL SKILLS

The WIGUP project appears to be closely aligned with the development of what are considered entrepreneurial skills in students. We therefore felt it appropriate and necessary to address this concept in this report.

In a world where technologies are ever more present, and where young people will have to be trained for jobs that do not yet even exist, entrepreneurial skills should be considered core educational competencies. Not only are these critical skills largely neglected in current school programs, more importantly, they involve the development of attitudes and abilities that will enable students to adapt more easily to the changes that are sure to come. Moreover, these entrepreneurial skills will equip them to build a meaningful future, not only for themselves, but also for their family, friends, and society at large: in WIGUP’s words, to “better the world.” Educating children to develop an entrepreneurial spirit would also mean equipping them to take charge of their own lives, to develop their own capacities, and above all, to believe in their potential to better the world. More broadly speaking, these are transversal skills that will benefit students and their communities throughout the lifespan.

In addition, by acquiring entrepreneurial skills, students and even preschool children can begin to develop attitudes that will carry them forward as autonomous individuals, according to their age. They will become individuals who can take initiatives, cope with challenges, and assume a central role in building their future. We must make a distinction here between entrepreneurial skills and enterprise skills. Enterprise skills—also called business skills—are used to build, run, and maintain an enterprise or business. The entrepreneurial spirit, on the other hand, is a desire to improve the quality of life for one’s community or even the entire world. The entrepreneurial skills that students acquire are manifest as an entrepreneurial spirit, to which we may add the ability to apply problem-solving strategies and use the resources needed (or create new resources) to resolve problems. The entrepreneurial spirit is also manifest when students listen to the needs of their community and respond by seeking a practical solution. Encouraging elementary students to undertake entrepreneurial projects can instill them with a taste for meeting challenges and coping with risks. In general, these types of initiatives have proven enormously popular with students and their communities.

One of the purposes of teaching entrepreneurial skills is to help students become more autonomous. Thus, they learn to reflect on problematic situations and come up with practical solutions by themselves. Once they acquire these skills, students can not only carry out the initiatives they have dreamed up, more importantly, they will also believe in their potential to achieve their projects and eventually become exemplary citizens. Teaching entrepreneurial skills therefore means finding ways to help students acquire the skills, attitudes, aptitudes, and values of a successful entrepreneur. In order to acquire these skills as they advance along the educational pathway, students must be exposed to academic experiences and activities that foster these attributes. For example, by undertaking small-scale projects that are in line with the educational mission, they can learn about some of the practical aspects of organizing and running a project or enterprise.

Many authors contend that teaching entrepreneurial skills requires granting students greater autonomy, so that they can participate in some of the decision making, including some project choices or even the overall direction for the project or activity. And we must not neglect the importance of teaching students how to connect with the community. Learning how to build community ties takes time: the process can begin with school outings, interviews, short apprenticeships, and so on. With younger students, it is
recommended to expose them to entrepreneurial experiences to introduce them to entrepreneurial values and aptitudes. It is also recommended to encourage students to use their initiative, resolve problems by themselves, and discover how an entrepreneurial project actually impacts their community. With high school students, more emphasis could be placed on developing a broad range of skills in situations of increasing complexity and/or challenge. It is here that the WIGUP project can play a major role: entrepreneurial skills appear to be well aligned with the WIGUP philosophy, which is that the individual student plays a central role in the learning process.

7. METHODS

The overall objective of this study was to understand the diverse impacts of the WIGUP project, including the benefits and challenges for students and teachers who participated in WIGUP initiatives. To do so, we used an original mixed-method approach (e.g., classroom observations, analysis of student projects, group and individual interviews) that was deemed appropriate for the study objectives (see the following subsections). The method used was what Karsenti and Savoie-Zajc (2011) and Yin (1994) and Stake (1995) have called the multiple case study. Yin (1994) contrasts the multiple case study with the single case study in that it aims to explore the convergence between multiple cases while examining the particularities of individual studies. Merriam (1988) and Huberman and Miles (1991) identified certain clear advantages of the multiple over the single case study. In the present study, we examined two classes of students attending two different schools in a minority French-speaking community. The multiple case study allowed identifying trends that were common to the two classrooms as well as specificities, both in terms of our study objectives. We were therefore able to distinguish transversal from more specific results within a limited sample. At this stage of the research, the case study appeared to be the most suitable method for obtaining a thorough, in-depth description of our study objectives. In future studies, we plan to include demonstration classes for a more comparative approach in order to deepen our understanding of the impacts of the WIGUP initiative.
Sample

We examined two classes of students attending schools in the province of Ontario, Canada. The classes were located in minority French-speaking communities. One was a fifth-year elementary class and the other was a sixth-year elementary class. Some students in the two classes were at different levels, which sometimes occurs in French-speaking minority situations. The WIGUP initiative was introduced to the two classes. Both classroom teachers were provided with individualized training in the WIGUP program. The students had access to various technological devices at their school (e.g., computers). This type of technology-enriched learning environment was considered suitable for examining the impacts of the WIGUP project. Figure 1 below shows that the average age of the participating students was 11 years.

![Figure 1. Average age of student participants.](image)
Figure 2 below shows that 65% of the sample (i.e., the two classes) were girls.

Figure 2. Distribution of girls and boys in the participating students.
Data collection

Data were collected in winter 2014. The mixed-method research approach included a range of complementary data collection tools designed to achieve the overall objective and the specific objectives:

1. Online questionnaires
2. Individual and group interviews with teachers and students
3. Classroom observations of each class
4. Analysis of students’ projects.

Data were collected in close collaboration with the school administration. Classroom observation has been a widely accepted method since Rosenshine and Furst (1973) published the *Handbook of Research on Teaching*. Classroom observers used a student observation grid. Semi-directed interviews (Van der Maren, 1996) were conducted using pretested protocols. The interviews primarily addressed the impacts of the WIGUP initiative, including the benefits and challenges. The questionnaires were used to gather sociodemographic and academic information, among others, and to learn more about the benefits and challenges inherent to the WIGUP project. In addition, various projects that the students completed were examined to gain further insight into the entrepreneurial aspects.
Data analysis

The individual and group interviews and classroom observations were analyzed with QDA Miner 4, a qualitative analysis software package that allows coding textual data and tracking codes across multiple documents. A thematic coding procedure adapted from L’Écuyer (1990) and Van der Maren (1996) was used. The analysis of the interviews provided an exhaustive accounting of the teachers’ and students’ perceptions of the impacts of the WIGUP initiative, including the benefits, challenges, and so on. These results contributed to achieve the overall and specific study objectives, as follows:

1. Better understand the WIGUP impact on students’ development of 21st century skills.
2. Better understand the WIGUP impact on students’ development of entrepreneurial skills.
3. Better understand the WIGUP impact on students’ development of technology skills.

The questionnaire responses (closed questions) were analyzed using SPSS 22.0. We believe that this targeted analysis of the study objectives provides a more nuanced portrait of the WIGUP initiative.

In this study, great care was taken to respect the principles of ethical research conduct. For instance, the study project was presented to the students, teachers, and parents concerned, and their informed consent was obtained. No confidential data arising from this study will be available for publication, and participants were free to withdraw from the study at any time.
8. **MAIN RESULTS**

The analysis results are presented in terms of the study objectives in order to clarify the understanding of the diverse impacts of the WIGUP project, including the benefits and challenges. The first subsection presents an overview of the various types of projects that the students completed.

**Types of student projects**

The analysis results of the individual and group interviews, online questionnaire responses, classroom observations, and student projects revealed that the students completed a wide range of projects as part of this introduction to the WIGUP initiative. The following are just some of the projects that these fifth and sixth graders completed: a book collection for Africa; a toy collection for hospitalized children; a blanket collection for homeless people in the community; sales of student-made bracelets, with proceeds donated to the Sick Kids Foundation or the World Wildlife Foundation (WWF); sales of pastries (also student-made), with proceeds donated to various organizations that assist people in need; and more. Many of the students’ projects demonstrated considerable development of entrepreneurial skills. First, the students identified a problem in their community (or elsewhere in the world, such as the “Gift of Hope” project for Africa). Then they considered how they might help resolve the problem (e.g., make drawings and sell them, organize a pastry sale, collect books or bottles). Finally, they used technologies to document the process, which gave them a real awareness of the entrepreneurial skills they had acquired. Impressively, these youngsters managed to collect over $300 for charitable causes. The opportunity to get involved in the community appeared to not only spark their interest, more importantly, it also helped raise their awareness of the needs of people living nearby.
Main benefits (positive impacts)

The analysis results of the individual and group interviews, online questionnaire responses, and classroom observations as well as the students’ projects revealed the main benefits of introducing the WIGUP initiative into the two classrooms.

All these benefits were closely related to the above-mentioned “skills for the 21st century.” At the head of the list, as reported by both students and teachers, was the skill that, according to Voogt and Pareja Roblin (2012), also heads the list of the majority of the references addressing 21st century skills: ICT literacy. The second most-often reported benefit was related to the communication skills that they developed through their participation in the WIGUP project. A feeling of competence was also reported frequently, albeit in various terms. The students felt “good” about being able to complete their projects. They also felt “competent” as well as “proud” of their projects and the outcomes. Entrepreneurial skills came fourth on the list of reported benefits. The students underscored that many of the entrepreneurial skills (e.g., problem solving, solution finding) that they acquired were a completely new experience for them at school.
A greater feeling of autonomy, belongingness, and motivation were the next most often reported benefits. For example, the students said that they had more “control” over the running of the project, and that they “had their say.” The feeling of belongingness was linked to the social and group aspects of the project. The students liked to “work as a team,” collaborate “with their friends,” do a project “in a group,” make something happen “as a team,” and so on. Greater motivation, which did not top the list, was nevertheless reported frequently by the students and their teachers, as well as active engagement in the WIGUP project.

Also cited as one of the many benefits was the development of civic skills. Similar to their appreciation of the teamwork, and as demonstrated by the many projects they completed, the students learned the meaning of “mutual support,” and they “learned more about some of the problems” in their community. By the same token, participating in the projects made them regard other people with more empathy, particularly those in need. For example, the students who carried out the “blanket collection” project said that they had never before realized how badly homeless people in their town might be in need of “warmth” and “blankets,” and that one of the best things about the project was that it made them more aware of these kinds of societal needs.

Finally, both students and teachers mentioned as a main benefit of the WIGUP project was that it developed their creativity. They believed that seeking solutions for society’s problems pushed them to be creative. The students said that they “looked for solutions” and “got better at finding them.” Beyond the benefits reported by the participants, we should mention that these fifth and sixth graders completed a wide variety of projects, demonstrating the creativity of their responses to social problems.
Figure 3. Main benefit of the WIGUP initiative.
Main challenges

This investigation also revealed the main challenges for the participants (Figure 4). The first concerned the size of the video files and problems managing them (most of the students made videos to illustrate their project and its outcomes). Before participating in the WIGUP project, the students had “hardly any experience working with videos,” which sometimes caused problems. On the other hand, the project gave them opportunities to work on important technological skills. In line with the first challenge, the second most often reported problem was the “rather slow” bandwidth provided by the school, especially for “uploading videos.” The third challenge sheds a strong light on how the WIGUP project helped them acquire skills: many said that they had trouble “in the beginning” working as a team to find concrete and realistic solutions to problems. This was sometimes described as “hard to learn, but necessary.” However, it was also revealing that even though the students recognized this challenge, they were able to overcome it, and for many of them, the teamwork was one of the main benefits of participating. The final major challenge was to find an organization that needed their help, not an easy task for the average 11-year-old. Many of them had never undertaken a school project outside of the school, which was in itself a challenge, although one that they all managed to overcome.

![Figure 4. Main challenges for participants in the WIGUP initiative.](image)

Overall impact of participation in a WIGUP project

For purposes of this study, we also decided to question the students more directly about how participating in a WIGUP project helped them develop their “skills for the 21st century.” The results at this scale point to the potential of the WIGUP program to offer substantial benefits that are consistent with the key competencies for elementary school education (Figure 5). Thus, participation in a WIGUP project can impact the development of leadership skills in youth (according to 78% of the students), as well as their capacity to persevere (86%), organizational ability (91%), ability to take the initiative (77%), sense of social responsibility for their community and the world (86%), capacity to discover and develop
their passions (86%), capacity to develop self-knowledge and self-awareness (86%), capacity to relate to the community (73%), feeling of competence (86%), ability to use technologies to create (86%), capacity to use social media to learn (77%), love of learning (82%), ability to find information (77%), capacity to act autonomously (95%), motivation to learn (91%), capacity to exercise critical judgment (95%), ability to solve problems (95%), ability to work in collaboration with peers (95%), ability to communicate (86%), and creative capacity (91%).
Figure 5. Impact on students of participating in a WIGUP project.
9. CONCLUSION

The results of this study revealed 10 major impacts of the WIGUP project on the students who participated. Many of these impacts involved skills for the 21st century and the information society.

The WIGUP project had major impacts on students in the 10 following areas:

1. Development of entrepreneurial skills, the most critical skills set for the 21st century
2. Development of communication skills
3. Motivation
4. Feeling of competence
5. Development of autonomy
6. Feeling of belongingness (pride to belong to their school and community)
7. Development of peer collaboration skills
8. Development of technological skills
9. Development of creativity
10. Development of civic skills, especially insofar as technologies can help them better their world, whether in the community or society at large, as demonstrated by some of the students’ projects.

Students who are given opportunities to participate in this type of project would be expected to make exceptional advances in terms of skills development. Not only would they learn more about their strengths and weaknesses, they would also be able to develop the competencies and skills they need to become more rounded citizens who can partake fully in world betterment. In light of the results of this case study, we may conclude that the WIGUP initiative has an important role to play in the acquisition of entrepreneurial skills.

Developing entrepreneurial skills in students also means fostering the basic values that are necessary and desirable for all citizens, today and in future: empathy, solidarity, team spirit, initiative, creativity, leadership, responsibility, autonomy, feeling of competency, organizational ability, and so on. By developing skills through participation in a WIGUP project, the two classes we studied were able to develop a truly entrepreneurial culture. These entrepreneurial values are increasingly associated with what are considered 21st century skills, and they can only be developed insofar as they are incorporated into specific educational interventions like the WIGUP project.
These results were not obtained by accident. In fact, the WIGUP project was specifically designed with 21st century skills in mind. Among others, the WIGUP’s primary mission is to help youth discover their true selves as they develop their skills, as clearly announced on their website.\textsuperscript{14}

Developing students’ entrepreneurial skills may also mean transforming their outlook toward community and social engagement, so that students are inspired to respond not only to their own needs or those of their immediate circle, but also to the needs of society at large. In light of the results of the WIGUP project, we feel that all schools in Canada and elsewhere should encourage their students to discover their true potential to better their community, so that the upcoming generation will become engaged citizens who can participate fully in tomorrow’s world.

10. RECOMMENDATIONS

In line with the results obtained in this part of the study, which aimed to better understand the impacts of the WIGUP project, we have formulated four main recommendations for schools and university researchers.

1. Entrepreneurial skills appear to constitute an important educational competency, and it would be desirable for students, school boards and commissions, and education ministries to integrate this competency into elementary school programs so that young children can be introduced to these skills in their fourth year of schooling.

2. The highly positive results on the two classes who participated in this initiative demonstrate that the WIGUP project helps develop not only entrepreneurial skills, but more generally, skills that are considered requisites for life in the 21st century. Accordingly, given the information society in which we live, it would worthwhile for classrooms in various schools to experiment with WIGUP projects for their students.

3. These results also indicate the need to follow up and report on these experiments in order to assess the extent to which these initiatives can help develop skills, not only in young people but also in society at large, for world betterment.

4. It would be advantageous for other provinces and countries to promote this initiative in schools.

5. It would be instructive to assess the long-term impacts on students of participating in WIGUP projects.
11. REFERENCES


