Project Description

We have had several discussions at South Hull Elementary School about the difficulty many students experience when it comes to completing MMCP (Mastery of Mathematical Concepts and Processes) questions. Upon further research, we came to find that this was not a problem unique to our school. Between 2014 and 2019, WQSB results on the MMCP portion of the MEES Mathematics exam were as follows:

Exam Year	Grade 2	Grade 4	Grade 6
2014	57	57	55
2015	67	54	64
2016	73	66	56
2017	68	55	56
2018	73	60	51
2019	67	55	57

Our project aimed to incorporate technology in creating an online bank of quiz games to help make MMCP questions more accessible and engaging for students. This new format would allow students to complete quizzes in a competitive or non-competitive environment through the addition of a scoring system and time limits to answer questions. Following the quiz, student results can be produced and exported to a spreadsheet, enabling teachers to receive immediate feedback on student success and to better identify areas of need moving forward.

Considering MMCPs are the most challenging section of the mathematics exam process for our students to complete, this project is important to improve student academic achievement in math and to improve student confidence during tests and in math class overall. It is our hope that by using technology to support the delivery of MMCP style questions, students will begin to perceive MMCPs as less intimidating and more manageable.

Synthesis of Journal Entries

Day 1
To get things started, our team played sample games from each platform we had considered using for our project (Kahoot, Quizlet, Quizizz and Plickers). This was an important first-step as it allowed teachers to offer feedback of their own, as well as predict potential issues that may arise in the classroom. The ability to answer math questions in a game format was enticing, but there were concerns raised around possible on-screen distractions, competitiveness, time limits and general classroom management. We also discussed how daunting it would be to create a satisfactory amount of quizzes on each of the platforms and, ultimately, we decided to focus primarily on using the Quizizz platform. It seemed the most classroom-friendly (set-up, speed to get started), showed questions and possible answers on student screens simultaneously, provided a tracker (number of questions answered, number of correct answers) on screen and its format allowed students to work at their own pace rather than wait for all students to be finished before moving on to the next question.

Online and paper sample quizzes were created for our classrooms, as well as a student survey to answer following each quiz. Our goal was to determine the differences in success and engagement in students, as well as flag any potential issues moving forward. Results would be discussed at our next meeting.

Question banks were created. It was decided that the majority of our quizzes would follow the Progression of Learning to ensure that quizzes could be used throughout the academic year and, if time permitted, concept-specific quizzes would be created. A few quizzes were created at the end of the day following this format.

Day 2
Our second meeting began with a lengthy discussion around the results from the sample quizzes and surveys in our respective classrooms. Overall, level of engagement increased while completing the online quiz, teachers liked that students could go back to questions they answered incorrectly, and the availability of Power-Ups in the game were an added treat for students that encouraged them to take their time answering questions since they needed a streak of correct answers to access them. As teachers, we also liked that feedback was immediate. At the end of the quiz, a report is produced that shows which question(s) each student got wrong, and what percentage of students were successful on each question. This report can be downloaded as a spreadsheet. It was also determined, however, that we would focus on creating games for Cycles 2 and 3, since using technology in the classroom is more time-consuming in Cycle 1. The majority of our discussion was focused on the issues we noticed and solutions for each:

Problem	Solution
• Anxiety related to points/standings visible to all students.	• Option not to track points during the game.
• Stress of working under a time limit (2-minute questions on sample quiz) without a visible timer on screen.	• Extend limit to 15 minutes per question. This will not affect the group as students can work through the game at their own pace.
• Length of sample quiz (10 questions) did not allow for full use of Power-Ups.	• Increase length of quiz to 20 questions.

For the remainder of our meeting, the bank of MMCP questions was finalized, and sorted by concept, and some quizzes were created.

Day 3
Our third meeting was dedicated exclusively to creating and testing quizzes.

During testing, we were looking for any issues with functionality, clarity of questions being asked, spelling mistakes and ensuring that correct answers were available and scored appropriately. During testing, we did find that phrasing of questions was important and were sometimes changed for further clarity. Some images that accompanied questions had to be replaced as they were too difficult to see against the dark background of the game.

Project Goals

The goal of our project was to create MMCP quizzes using multiple online platforms that would increase student engagement, confidence and success. We achieved our goal in that we were able to create a number of quizzes, in both French and English, for Cycle 2 and 3 students. However, we did not create as many quizzes as we had originally intended and we decided to only use one online platform.

The number of quizzes created would have been greater had team members been more familiar with using Quizizz prior to starting the project since time had to be taken to grow more familiar with the platform. The time needed to create each quiz was underestimated, especially when properly formatted visual aids needed to be included, and we ultimately created less quizzes than expected since we did not conduct our final meetings due to the COVID-19 pandemic.

Although we started our project with the intention of using multiple online platforms, the decision ultimately had to be made to focus on one so that we could create as many quizzes as possible. Given that there are more platforms out there that have not been explored, this opens the door for future projects to make use of other platforms we did not use.

Project Outcomes

First and foremost, our project exposed participating team members to online platforms they had not used previously, and increases the likelihood of these types of activities being used in the classroom. Given that they had the time to play and create their own quiz games using these platforms, our project allowed for team members to better appreciate the value of these types of tools. Each team member walked away from the project feeling enthusiastic about using the quizzes we created, as well as the Quizizz platform itself to create their own games across multiple subject areas, and more confident in their ability to use them to compliment their teaching. Lastly, given that a few of our group members were less comfortable using technology, having the opportunity to work collaboratively with colleagues and learn from them removed some of the fear or anxiety in using technology in their teaching.

Reinvestment

Our project focuses on an area of the MEES Mathematics exam that all students are exposed to and, from our findings, that many experience difficulties with. That is not to say that online versions should be used exclusively as the exam still has to be written on paper. However, using these online quizzes to compliment teaching is a great way to add some fun and increase engagement in math class.

Each of our team members is walking away from the project feeling more confident in their ability to use an online platform like Quizizz to create games for their class, whether that be in math or other subject areas. The hope is that we can each take our increased knowledge and share it with our colleagues and peers.

There would be value in other teams investing their own time in carrying out this project. More quiz games can be created in math in order to provide further variety to the types of games available to students and teachers. Additionally, exploring how to use a platform like Quizizz across other subject areas would be beneficial as well. This project could be improved upon by exploring one or more different platforms to use, such as Quizlet and Plickers since they each offer their own unique gameplay.

A list of created quizzes available for use is provided on the following page.

MMCP Quizzes

Platform: Quizizz (http://www.quizizz.com)

Directions:

1. Create and sign in to your free Quizizz account
2. Open the Find a Quiz tab from the left menu
3. Use the provided search bar to find a quiz (listed below). Each title indicates the cycle, quiz number and language of instruction. For example:

Quiz #1 in French

MMCP211F

Cycle 2.1
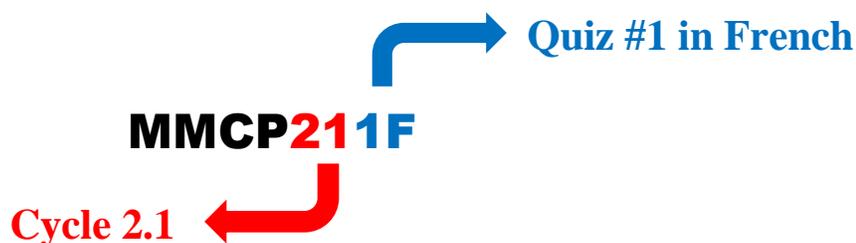
English	French
MMCP211E	MMCP211F
MMCP212E	MMCP212F
MMCP221E	MMCP213F
MMCP222E	MMCP221F
MMCP223E	MMCP222F
MMCP321E	MMCP223F
MMCP322E	MMCP224F
MMCP323E	MMCP225F
MMCP324E	MMCP226F
MMCP Order of Operations Cycle 3	MMCP227F
MMCP Measurement Cycle 3	MMCP228F
	MMCP229F
	MMCP230F (Cycle 2.2, Quiz #10)
	MMCP231F (Cycle 2.2, Quiz #11)
	MMCP232F (Cycle 2.2, Quiz #12)

** If your computer's language is set to French, please choose the English language search filter in Quizizz to access the French quizzes. **