

Introduction & Background

A greater portion of our work continues to shift to digital-based formats; this also includes how we assess students. Some subjects like the humanities have transitioned with relative ease, but due to formatting difficulties with mathematical concepts, other subjects have lagged behind.

- I wanted to know “How does using digital assessment in a chemistry class affect my student’s performance and are they able to communicate as effectively using digital-format assessments?”

Research Questions

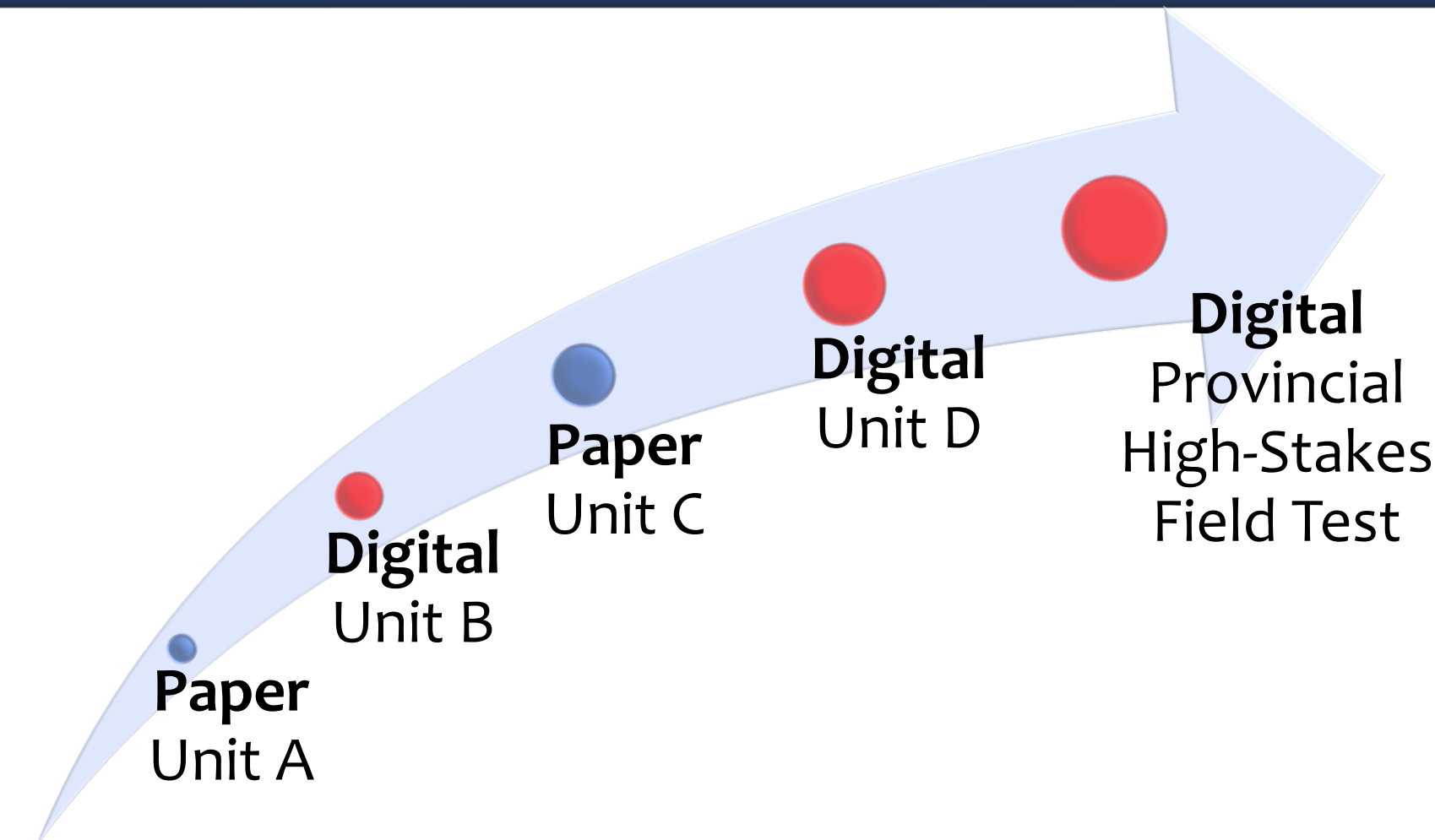
What is the effect of digital format assessment on student performance?

- How does digital assessment affect performance on a high-stake assessment?
- How do students view and perceive their performance on paper compared with digital assessments?
- What are the implications for me as a teacher and how do they impact my professional practices?

Data Collection

Focus Question	Primary Question: 1. What is the effect of digital format assessment on student performance?	Sub-Question 1: 2. How does digital assessment affect performance on a high-stake assessment?	Sub-Question 2: 3. How do students view and perceive their performance on paper compared with digital assessments?	Sub-Question 3: 4. What are the implications for me as a teacher and how do they impact my professional practices?
Treatment	- Two formative quizzes each unit - One summative quiz each unit	Online provincial field test	- Pre-Likert survey - Post-Likert survey	- Pre-Likert survey - Post-Likert survey
Post-Treatment	Summative unit exam	Comparison of data to school-based results	Student interviews	Student interviews

Treatment



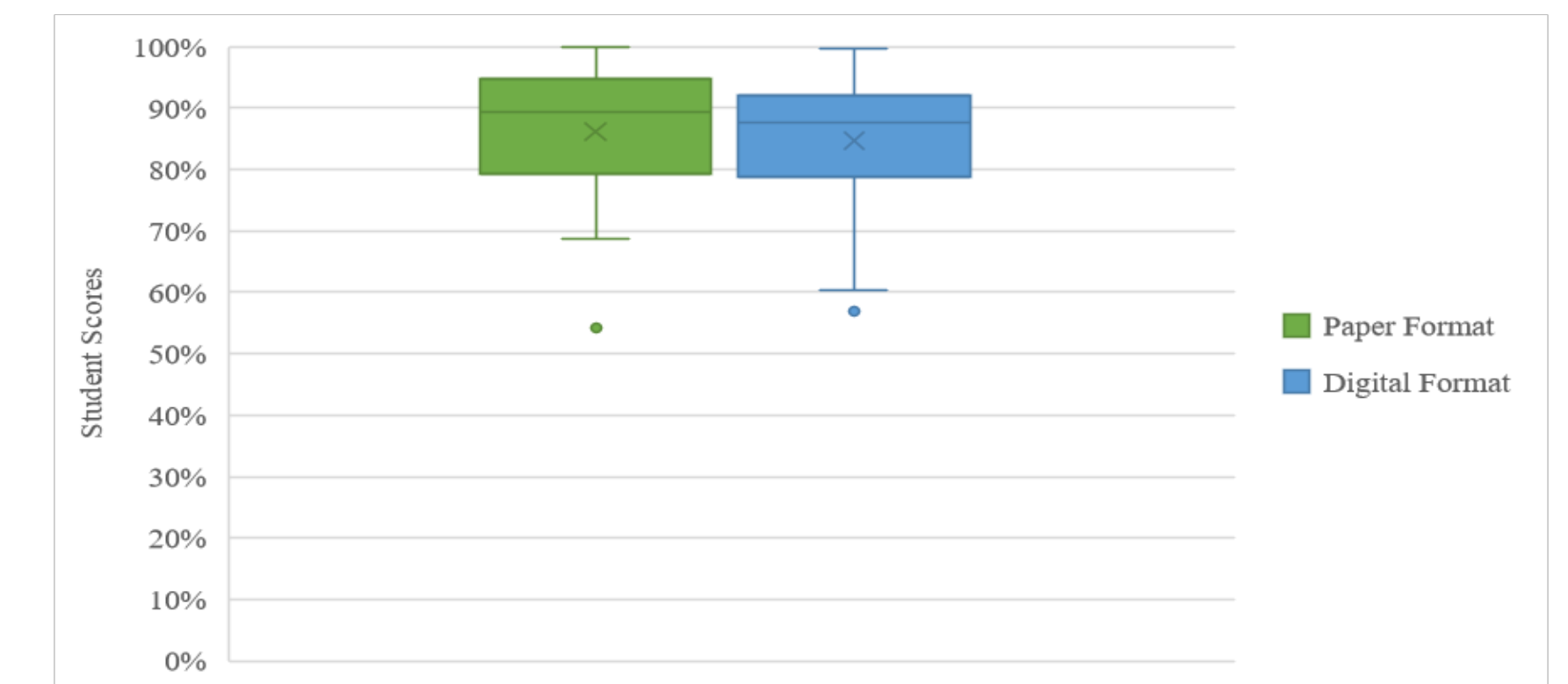
Student Quotes

“There was some learning that had to take place each unit, but by the time we got to the summative assessments, it didn’t matter what format we used.”

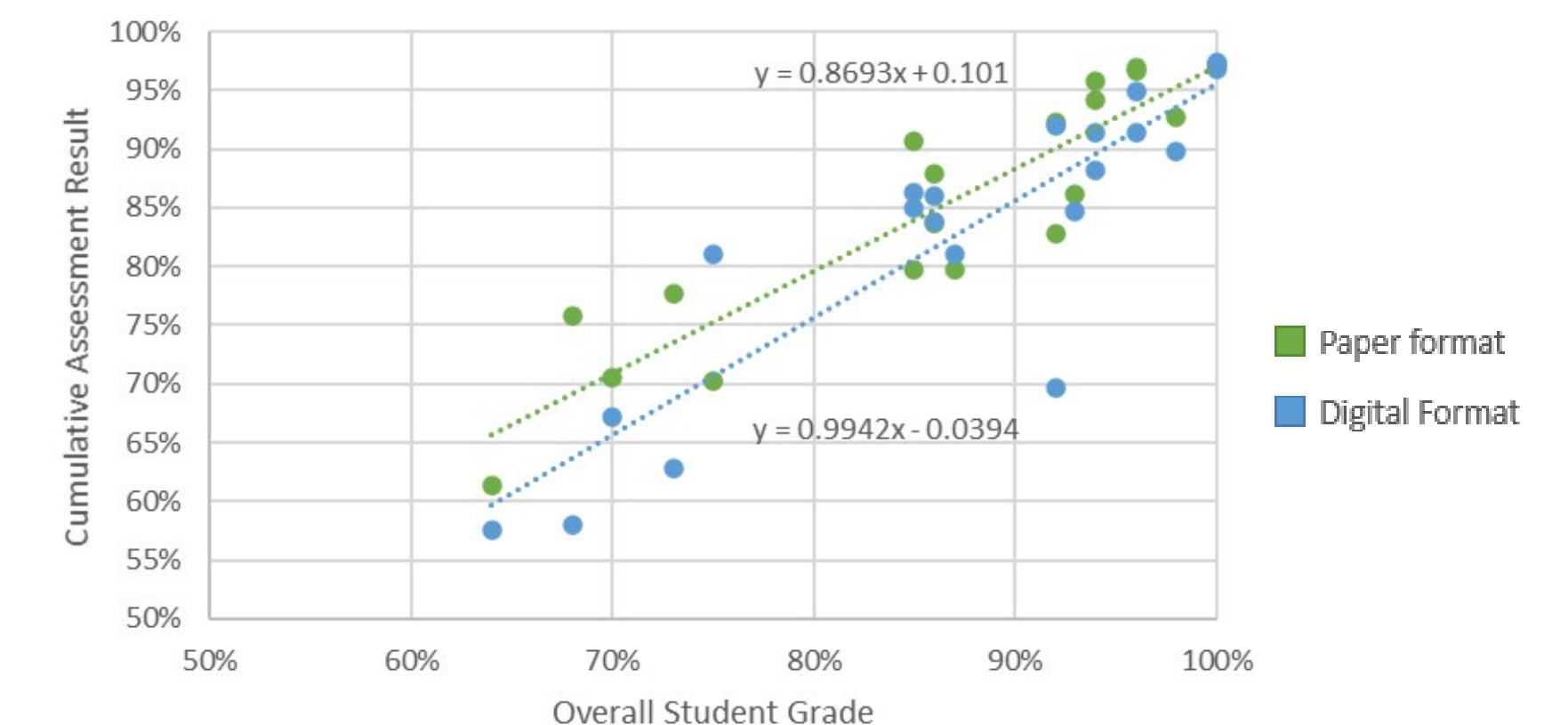
“Performance on a assessment is not based on doing digitally or on paper, but your knowledge on how you do the assessment.”

Results and Data Analysis

Student Performance: Paper Versus Digital



Student Performance: Digital Assessment in Relation to Their GPA



Conclusion & Future Implications

When comparing the summative assessment results, the students performed with no significant difference using paper format versus digital format. Students were able to demonstrate similar results in standing when compared to a high-stakes provincial field test. Prior to treatment, students demonstrated an approximate equal preference for paper or digital format assessments. It is the student preference in format that had the most significant change, as post-treatment the students indicated that they preferred short answer questions on paper as entering formulas and variables was easier to accomplish than in the digital format. There was little difference in preference when completing other types of questions (multiple choice and numerical response). Further use of online assessment will be explored by finding new and relevant supporting hardware and/or software that can ease the formatting issues that students indicated as sources of frustration when completing written response-style chemistry questions.