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Title: Using Data to Inform Computing and Digital Literacy Integration Across a Community College Teacher Education Program

Kingsborough Community College

Research Context

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 the backstory

Overarching Research Questions

How does our Education Program develop and implement an effective, equitable scope and sequence for computing integrated teacher education? In order to answer this overarching question, we will need to answer the following sub-questions:

1. What can the KCC Education Program take away from other computer and digital literacy education frameworks when designing an effective and equitable scope and sequence for computing integrated teacher education?

2. What can the KCC Education Program take away from participant feedback from Makerspace Discovery sessions when designing an effective and equitable scope and sequence for computing integrated teacher education? This data will be collected through analysis of participant surveys.

Findings: Defining Digital Literacy - Multiple Frameworks

Students' Perceptions	Quotes	List et. al Framework	CITE
Basic understanding of how to operate technology	" how to use a computer" "Understand how to login and search for classes.."	Technology focused: …centered on learning certain technical tools (ie. computers, Internet)	About
Ability to use technology for connection and communication	"being able to communicate, connect and collaborate.."	Digital reading: …centered on translation of traditional print literacy to digital environments	With
Ability to use technology to learn or gather information	"...knowing how to use technology, such as the internet for things like searching for information…"	Goal directed: …centered on the use of digital resources to complete specific activities	With
Ability to use technology to create and express oneself	"Design software such as Adobe Photoshop.."		Through
Ability to critically think to evaluate sources	"Digital literacy is the ability to tell if a source is reliable…"	Critical use: reflective & evaluative process of utilizing technology & reading digitally to achieve task goals.	Against

Findings: Defining Digital Literacy - Multiple Frameworks

Students' Perceptions	UNESCO (Digital Literacy Global Framework) Alignment	How does the UNESCO framework challenge us to elaborate?
Basic understanding of how to operate technology	Devices and software operations Career Related Competencies (6.1 Operating specialized digital technologies for a particular field)	
Ability to use technology for connection and communication	Communication and Collaboration	
Ability to use technology to learn or gather information	Career Related Competencies (6.2Interpreting and manipulating data, information and digital content for a particular field) Information and Data Literacy (1.1 Browsing, searching and filtering data, information and digital content &1.3 Managing data, information and digital content)	
Ability to use technology to create and express oneself	Digital Content Creation	
Ability to critically think to evaluate sources	Information and Data Literacy (1.2 Evaluating data, information and digital content)	Problem Solving Safety

Findings: Defining Digital Literacy - Multiple Frameworks

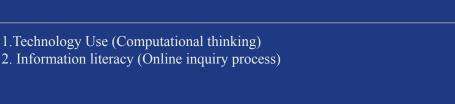| Students' Perceptions	Gouseti et al. (2021) Alignment	How does Gouseti et al. (2021) challenge us to elaborate?
Basic understanding of how to operate technology	Technology Use (Critical technical skills)	
Ability to use technology for connection and communication	**Digital communication and collaboration (Online communication)**	**1. Digital communication and collaboration (Online collaboration, Digital empathy, Networking, Digital identity and profiles, Online privacy)**
Ability to use technology to learn or gather information	Data literacies (Data visualization) Information literacy (Online reading comprehension)	1.Technology Use (Computational thinking) 2. Information literacy (Online inquiry process)
Ability to use technology to create and express oneself	**Digital content creation (Creative digital expression)**	**1.Digital content creation (Co-creation, Multimodal production)**
Ability to critically think to evaluate sources	**Information literacy (Source validation and verification)**	1.Technology Use(Technology risks and troubleshooting) 2.Data literacies (Data analytics, Data protection and safety, Big and open data) 3.Information literacy (Digital media use) 4.Digital content creation (Digital publishing, Remixing) 5.Digital well -being and safety (Empowerment, Online safety, Digital overexposure 6.Digital selfhood, Digital belonging, Ergonomics) 7.Digital Citizenship 8. Digital teaching and learning

Makerspace Feedback

Continuum of complexity

About ➡ **With** ➡ Through ➡ Against

KINGSBOROUGH
COMMUNITY COLLEGE
★ DREAMS BEGIN HERE ★

90% Agreed or Strongly Agreed that:

"...the workshop's activities have helped prepare me to select and use tech tools appropriate to my teaching goals"

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Makerspace Feedback

Continuum of complexity

About ➡️ With ➡️ Through ➡️ **Against**

81% Agreed or Strongly Agreed that:

"...the workshop's activities helped me to better understand equity and computing"

Makerspace Feedback

Major themes	Learning outcomes	Operationalizing
Content/Curriculum	- Computational thinking (Algorithms, Sequence, Debugging) - Coding basics - Digital Map making - How do circuits work?	- By playing with coding mice and un/plugged coding games, students will learn the connection between computational thinking basics and coding - By playing with digital games, students will learn the importance of conditional statements in coding
Process/Pedagogy	- Group activity to allow students opportunity to help one another - Ice breakers connected with makerspace activity to get to know students - How to set up hands-on makerspace activities - How to give clear and specific instructions - How to foster a multi-lingual classroom	By setting up a coding makerspace for children, students learn how to prepare and organize a Montessori-informed classroom By facilitating a Montessori -nformed makerspace, students learn to observe students in order to supuport them By engaging in the Maky-Maky makerspace students learn to pivot as needed
Equity/Emotions/Criticality	- Using technology (Plickrs) to get to know students and "meet students where they're at" - Using technology to make learning fun & engaging - Interactive activities that intentionally encourage building off of strengths of community	By tinkering with coding games, students will gain confidence working with technology By working in team on makerspace activities, students will learn how set up culturally -responsive computing activities By modleing an emergent bilingual makerspace, student learn how to set up a multilingual learning space

Next steps + Q /A

- Finalize literature review
- Finalize analysis of makerspace data
- Finalize strategic planning
- *What caught your attention today?*
- *Any suggestions, ideas, thoughts?*