Using H5P to Create Simulations that Replaced Clinical Hours and Leveraging Gamification to Invite Student Creativity Through Co-Creation of Computer-Based Simulations

CAMBRIAN COLLEGE

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Background

- **Virtual simulation** supports critical thinking, self-efficacy, confidence, and knowledge retention.[1,2] It is cost effective.[3]
- **Gamification** means integrating game design elements into the course to encourage engagement (such as badges).[4]
- Evidence for traditional in-person learning is inadequate.[5]
- In-home family visits were **costly** to supervise, **difficult** to locate and schedule; Laura could not verify learning.[6]

Our aim is to describe how:

1. H5P technology was used to create online virtual **simulations that replaced in-home family visits**.
2. Gamification promoted **Co-creation**.

Please click here for a short video outlining the innovation.

Development

Three Scenarios With Two Simulations Each

1. Branching: Chronicity assessment simulations use H5P branching logic (like choose your own adventure stories).
2. Linear: Longer family assessment simulations.
3. In-class role play and debrief; students asked questions.

H5P Technology (see https://h5p.org/)

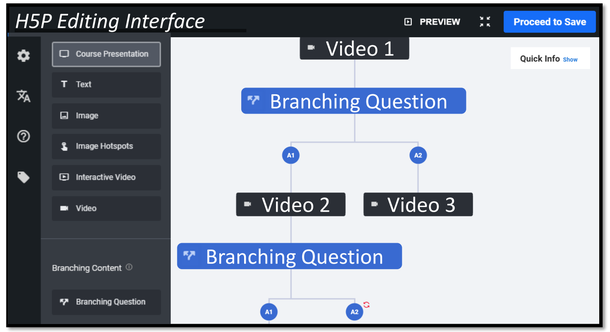
- Free and open-source; integrated into Moodle.
- 21 to 62 decision points per simulation.
- Videography and instructional design support provided.

Optional Co-Creation

- Students worked with Laura to develop and film a new simulation.
- They received a badge (or digital sticker), which they could use for rewards (i.e., bonus marks).
- Permission obtained for future use.

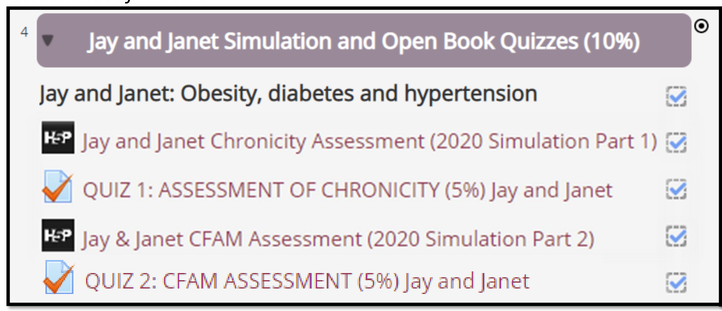
The "Simulator" badge; equivalent to 5% of the course grade.

H5P Editing Interface

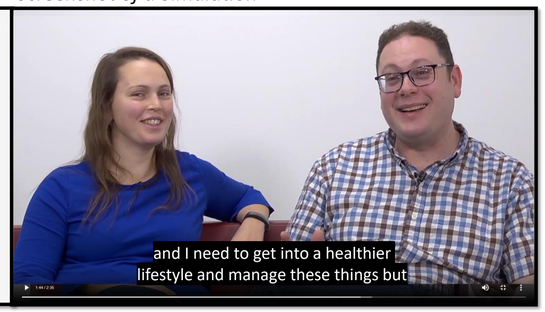


Implementation

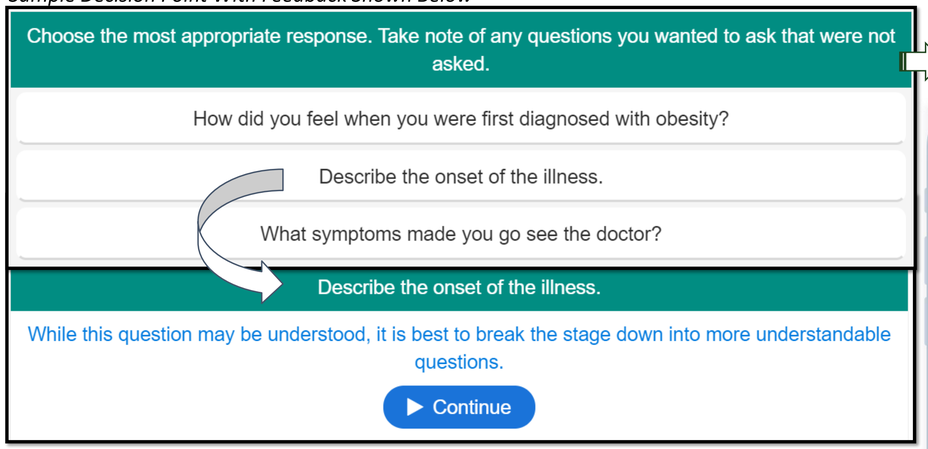
Screenshot of Moodle



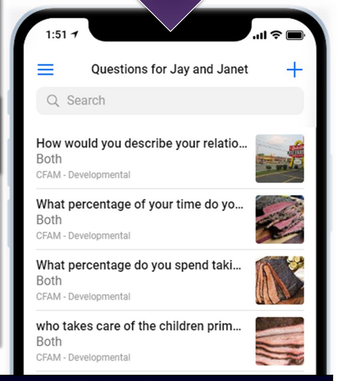
Screenshot of a Simulation



Sample Decision Point With Feedback Shown Below



Students asked questions via a Google Forum. We answered via an app and in class.



2020 Course Simulation Schedule

Week	Theory (2 hours)	Lab (1 hour)	Evaluation
1	Family, Chronicity, and Rolland's Framework		
2	Calgary Family Assessment Model (CFAM)	Simulation: Chronicity assessment.	Quiz 1: Assessment of chronicity (5%)
3	Scholarly writing	Simulation: CFAM.	Quiz 2: CFAM Assessment (5%)
4	Family assessment and assignment 1.	Scholarly Writing	Scholarly introductory paragraph (5%)
5		Drawing genograms and ecomaps.	
6	Families answered student questions. Debrief: Discussion of simulations.	Articulating the assessment of the simulated family.	Essay 1: Family assessment (20%)
8		Selecting concept-focused literature.	Essay 2 Outline: Concept justification (10%)
9		Table articles for assignment 2.	
11			Essay 2: Concept application (30%)

Note. Everything in this table is related to the simulated family. Adapted from Killam and Luctkar-Flude.[6]

Anecdotal Outcomes

Students

- Immediately accessible
- More in-class support
- Enabled replay and discussion
- Improved learning
- Less stress

Faculty / Department

- Met learning outcomes
- Knowledge of families
- Renewable
- Cost savings
- Less stress

Challenges	Enhancements Implemented
Time-consuming development	• Co-creation with students • Support from Cambrian College staff
Technical issues	• Use of on-campus computer labs
Guidance needed	• Completion during labs • Pre-brief, in-class guidance, debrief • Quizzes to ensure understanding
Tracking	• Based on quizzes and assignments

Key Reflections

- Virtual simulation development by faculty is feasible.
- Formal research is needed to measure effectiveness.
- Gamification impacts student motivation and engagement.[4]
- Co-creation with students is valuable for learning.[7-9]
- Ongoing evaluation of student learning is needed.

Challenges	Future Enhancements
Internal access	• Create open access simulations • Potential for international impact
Variety	• Need more diverse actors
Length	• Divide the longer simulation into two • Work with experts to focus content

Implications and Future Directions

- Development of open access virtual online simulations that can be accessed through Can-Sim (http://can-sim.ca/)
- Research about co-created simulation development

CAN Sim
Canadian Alliance of Nurse Educators Using Simulation ©

References and More Information

- Click here to read our article.
- Click here to view the reference list.