ETEC510 DESIGN PROJECT PHASE 1: PROPOSAL

Critical Thinking for High-Schoolers

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Prepared for Dr. Andrea Sator

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I. A name or title for your proposed project, which could be related to the topic that will be centered in your designed object/tool.

Critical Thinking for High-Schoolers – A gamified toolkit to be your own detective

II. A breakdown of group members and member roles as they are understood at this point.

Weve opted to provide a strengths and synergy table to address the question.

Name	Strengths	Synergy w/ Team
Kim	Education and Curriculum Development	Follow through on tasks and contribute meaningfully bringing in insights from education and accessibility
Angelyn	Software Development, Design Principles	Design and software insights, knows about LMSs and common tools
Shingo	Music/Tech and Youth Development Insight	Research skills, insights into digital acceptability of the youth
Keifer	Creativity, Adult Education	Understands launching products and scaling. Creative ideas for product development
Rohit	Facilitation, task management, idea generation and action sequencing	Takes the specialized knowledge from the team and integrates into a plan

III. The subject matter and learner cohort you have chosen for your work, along with a brief description of what has led you to make these choices in terms of content.

III a) Why the subject matter:

During our Keyword #1, we noticed all of us individually were interested in the concept of critical thinking, and its effect on participatory culture. Then, in our initial brainstorming session, we introduced ourselves and discussed our backgrounds, learning that we were all connected to education in some way.

III b) Why the target audience:

Upon further discussion, we decided that the audience persona that would benefit most from developing these skills **are tenth graders**. Sun and Hui (2012) further support our choice, stating, "Adolescents who are equipped with these thinking skills tend to have better learning, wellbeing, and positive development" (p. 4).

In our subjective experiences, we have found that this age group has enough life experience to relate to the material we propose to present while still being early enough in their educational journey to apply it to their learning development.

III c) Learning Space to intervene in Why/ How?

We intend to develop this tool as a component of the Career Studies course offered in various provinces across Canada. In Ontario, Career Studies is a Grade 10 secondary school course designed to equip students with the skills, habits, and strategies needed to support their personal and professional development throughout their lives (Ontario Ministry of Education, 2024). By creating this short course, teachers will be able to integrate the material into their curriculum planning and engage students in meaningful and purposeful ways. The tool can be integrated into either e-learning or in-person Career Studies courses, at the teacher's discretion.

Our project seeks to intervene in the Career Studies classroom by addressing the challenge of limited student engagement. This intervention reconfigures the typical delivery model of high school classrooms by offering an interactive experience that leverages digital technologies to gamify course elements and intentionally design for engagement and relevance to adolescents' lived experiences.

The course will provide students with opportunities for lifelong learning across various domains, including relationships, career pathways, and educational planning. Through its development, we aim to incorporate gamification elements that foster a reflective and collaborative learning environment while effectively integrating digital technologies.

IV. What platform your group will be using to develop this module

To fulfill the intended impact of our goals, while being mindful of the scope & timeframe of our team, we've identified the following platforms:

1) Prototype Phase: Moodle as our Learning Management System (LMS) with Genially as the gamification & interactive module development.

2) Expansion Phase: Using a gaming engine (such as unreal or unity) to convert the curriculum and interactive elements into a sandbox learning and participatory environment.

IV. Theory and Scholarship

A connection to some of the theory and scholarship that we have encountered in the course thus far, including a few specific references.

Our project is in direct conversation with Jenkins (2009) on participatory culture. Jenkins argues that although youth are more engaged with digital media environments, they must also develop important skills to participate critically and ethically. He emphasizes that "a focus on expanding access to new technologies carries us only so far if we do not also foster the skills and cultural knowledge necessary to deploy those tools toward our own ends." (Jenkins, 2009, p. 8) This idea directly informs our group goals regarding ways to develop and reinforce students' critical thinking skills to carefully engage with digital and media consumption and participation.

Additionally, Jenkins (2009) highlights that "students have some tendency to read 'professional' sites as more credible than 'amateur' materials, although they lack a well-developed set of standards for distinguishing between the two." (p. 23) With rapid advancements in artificial intelligence, distinguishing between what is true and what merely appears true has become more complex.

Our tool aims to help students develop a stronger critical lens to navigate these challenges. Furthermore, Jenkins (2009) stresses that "the World Wide Web is a more aggressive and stealthy marketeer to children than television ever was, and children need as much information about its business practices as teachers and parents can give them" (p. 24) and that "commercial interests influence what we see and what we do not see." (p. 23).

What scholarship do you view your project as in conversation with? Be as specific as you can be here! Introduce the scholars and their ideas/concepts that you working with.

Critical thinking is a fundamental skill that continues to be important for individuals in our world today, as it is essential for communication, problem-solving, and decision-making. To ground our project in theory, we decided to use the Critical Thinking Thematic Framework developed by Shafer (2025), who introduced three thematic lenses to view critical thinking holistically.

These lenses include the pragmatic lens, which explores critical thinking through reasoning; the dispositional lens, which explores critical thinking through reflection; and the transformational lens, which explores critical thinking through agency. These three lenses will serve as the pillars that guide the learning experiences that make up our project. This Critical Thinking Thematic Framework is especially appropriate for our target audience, as it allows for developmentally appropriate reasoning and identity exploration while providing us, as designers, with a structured yet flexible guide for instructional planning.

Our project encourages students to question who benefits from their online engagement and how commercial interests shape the content they encounter. Ultimately, we hope to provide "a safe space within which they can master the skills they need as citizens and consumers as they learn to parse messages from self-interested parties, and where they can separate fact from falsehood as they begin to experiment with new forms of creative expression and community participation" (Jenkins, 2009, p. 24).

A description of some of the key features, functions, and interactivities that your group expects the designed object/tool will have. If you're making an app, walk through some of the features; making a website? take the your reader through its layout and key areas of focus. Whatever you are designing, outline what your group imagines it will look like and how it will work as it comes together.

V: Key Features, Functions, and Interactivities

The following observations are from Shingo, who teaches grade 10s in similar fields to what we are intending to engage with. We then attached design features to these observations.

i) Observations About Content Format Preferences

Grade 10 students like videos —this is consistently their preferred format for consuming educational content. In contrast, reading text is harder for some students, which creates accessibility challenges when text is the primary medium.

Beyond consuming content, students like making videos and working together. They're comfortable creating video content themselves and seem to learn well through collaborative production activities. They are very social, and this social nature extends into their learning preferences.

Design Feature: Video based case studies.

ii) Observations About Visual Literacy and Digital Sophistication

Today's Grade 10 students are experts with visuals —they have advanced visual literacy skills. For example, they can easily spot AI-generated images, demonstrating a sophisticated ability to analyze visual authenticity.

They frequently play video games and consume short-form videos (platforms like TikTok, YouTube Shorts, Instagram Reels), which has shaped their expectations for visual quality, pacing, and interface design. Their aesthetic standards are high, influenced by the polished digital content they encounter daily.

Design Feature: Bright, engaging aesthetics & interactive practice questions such as "spot the difference" in scenarios.

iii) Observations About Technology Access and Use

Students are working on laptops rather than mobile devices, though mobile access may be relevant for homework or extended learning outside school hours.

Design Feature: PC accessible (not optimized for mobile) for focused learnings.

iv)   **Observations About Motivation**

Grades are important to Grade 10 students—this is a significant motivator for completing work and demonstrating effort. Additionally, having to present in front of their peers is motivating —the social aspect of sharing work with classmates seems to drive engagement and quality.

I've observed that some competition can help with motivation, but it isn't effective long-term . Initial competitive elements may spark interest, but sustained engagement requires deeper intrinsic motivation or authentic stakes.

Design Feature: Badges, XP progression and leaderboards. Clear points or rubric systems.

v)   **Observations About Learning from Mistakes**

Grade 10 students are at a developmental stage where they can be quite self-conscious, so how we frame feedback matters significantly for their willingness to take intellectual risks. Making a mistake is helpful for learning; the brain is activated when a mistake is made; less so if a task is completed effortlessly.

Design Feature: Direct feedback after a scenario or questions within the quiz/module.

vi)   **Observations About Collaboration and Peer Learning**

Working in groups and learning from each other is very important in my view and something I try to develop in my classroom. Grade 10 students are highly social, and they often learn effectively from peer interaction.

Without explicit frameworks and sentence starters, peer feedback can be vague, overly critical, or unhelpful. Structured approaches to peer interaction yield better learning outcomes.

Design Feature: Some sort of collaboration system (multiple users)

vii)   **Observations About Autonomy and Structure**

In my teaching, I've found that Grade 10 students tend to like truly clear expectations with some choices within that structure. They don't thrive with completely open-ended assignments, but they also resist overly rigid, lockstep instruction.

The sweet spot seems to be providing a clear framework or path while allowing meaningful decisions within that framework: what to explore, how to demonstrate understanding, which examples to analyze, etc.

Design feature: A combination off straightforward curriculum and progressive learning, with a sandbox approach to using these tools in different environment or case studies.

Summary: Our key considerations in this demographic are:

1. Capable of sustained focus when invested, but require varied, active approaches rather than passive instruction

2. Highly social learners who prefer collaboration and peer interaction

3. Visually sophisticated with high standards for design and immediate detection of low-quality or inauthentic content

4. Video-oriented in their content preferences, with text presenting challenges for some

5. Motivated by authentic stakes (grades, peer presentation) more than artificial gamification

6. Developmentally self-conscious, requiring feedback approaches that protect ego while building skills

7. Diverse in their needs, requiring multiple pathways and accommodations

8. Responsive to clear expectations with built-in choice, rather than complete freedom or complete rigidity

VI. Some idea of what you want the tool to do. What are you hoping that users will gain from interacting with your designed object/tool?

We want the tool to provide students in grade 10 a critical thinking toolkit, that they can then experiment with in a gamified setting to apply the knowledge in a safe, engaging & collaborative experience.

Setting the Stage

By letting the student be the Lead Detective, we're giving them the agency to own their journey. This helps them feel capable instead of resistant because they don't feel like the work is "too hard" for them right off the bat.

Choices, Redemption, and Real-Life Examples

A story may be built a branching path system. If you make a bad call, the story changes, but it's never game over. We want to include a redemption mechanic, even if you mess up early; if you nail a much harder task later, you can jump back up to the top of the leaderboards. This teaches them that mistakes are just part of learning.

Using Media to Build Critical Judgment

The content will be a mix of briefing clips and evidence files. A character might give a briefing that contains clues about their personality or bias. It's the perfect way to teach them about things like deepfakes. To make sure everyone can participate, we're leaning heavily into voice notes. In class, kids are often way more open when they can just talk; they don't have to be self-conscious about their spelling or try to sound like a perfect student version of themselves. It lets them be authentic while they build their judgment skills.

The Big Picture: Collaborative Learning

We will look to add multiplayer team games to encourage group learning to enhance the longevity of the tool as useful and impactful experience.

Summary: Our design criteria start with these ideas:

- Lightweight
- Aesthetically cartoony
- Ease of use
- Accessible
- Safe mistakes
- Gamification & visible progress
- Case study engagement

References

Ontario Ministry of Education, (2019). The Ontario Curriculum: Career Studies, Grade 10, open (GLC20) - *Guidance and career education* (Advance release of the curriculum expectations) [PDF]. Government of Ontario. https://www.edu.gov.on.ca/eng/curriculum/secondary/career-studies-grade10.pdf

Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, A. J. (2009). Confronting the challenges of participatory culture: Media education for the 21st century (1st ed.). The MIT Press. https://doi.org/10.7551/mitpress/8435.001.0001

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