Investigate and Report Illustration 1

STUDENT EXPANDS SKILLS AS A RESEARCHER AND HISTORIAN



Self-assessment and critical analysis

Throughout the *self-assessment and critical analysis* component of her capstone preparation (see pages 15–21 in the Career Education 10-12 Guide for more information about the components of capstone), the student shared with her teacher-mentor her reflections on experiences in school and out of school, her accompanying self-assessment in the Core Competencies, and highlights of her learning journey and preferred options for post-graduation. The student hoped to study history or archaeology in university and decided that it would be beneficial to develop transferable skills as an academic researcher through a formalized inquiry into cultural impacts of colonialism, a topic of personal interest. She selected the *investigate and report* capstone process to align with the research and reporting skills that would serve her well in pursuing her goals for post-graduation.



Process and representation

Learning focus: Developing transferable skills as an academic researcher

Research topic: Colonialism in the Middle East during the Middle Ages

Context

Inspired by Michael Chabon's novel *Gentlemen of the Road*, the student wanted to know more about the politics of the Middle East in the Middle Ages. She expressed curiosity about events of that time and place, and also about the history of colonization in that part of the world. She also wanted to put the experience of colonization in North America into a wider and more global context by studying the history of colonialism in another era and on another continent.

Connections

Curricular or domain connections

<u>Career Education</u> – Analyzing internal and external factors to inform personal career-life choices for post-graduation; Assessing personal transferable skills, and identifying strengths and those skills that require further refinement; Collaborating with teacher-mentor; Cultivating community relationships to support plans for post-graduation; Reflecting on learning experiences and personal development in the Core Competencies; Preparing for next steps in personal lifelong learning journey

<u>Social Studies</u> – Gaining understanding of people, places, issues, and events that have shaped the world through historical inquiry; Comparing different cultures and experiences that exist and

have existed throughout the world develops an appreciation of how aspects of human experience are shared across time and space

Mathematics - Data literacy and representation

<u>English Language Arts</u> – Gaining a repertoire of communication skills, including the ability to interact with a community advisor and share information through digital means in ways that engage the audience



Community connections

Global community North American community Local community

Connections to First Peoples Principles of Learning

Learning is embedded in memory, history and story: Gathering history from the local First Nation, and an understanding of historical and cultural contexts

Learning involves recognizing the consequences of one's actions: Thinking that we are all related, the student's exploration of colonization historically in various parts of the world may serve to highlight our similarities

Core Competencies connections

Communicating - Connecting and engaging with others; Acquiring and presenting information

<u>Critical and Reflective Thinking</u> – Analyzing and critiquing; Questioning and investigating; Designing and developing; Reflecting and assessing

Creative Thinking - Creating and innovating

Positive Personal and Cultural Identity - Understanding relationships and cultural contexts

Social Awareness and Responsibility - Building relationships; Valuing diversity

Investigate and report process



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Formulate an inquiry question to investigate

The student considered a series of questions, including:

- How were statistics captured in the Middle Ages in contrast with how this is done today (process and technologies)?
- Are there repeated cycles of colonization throughout human history, and, if so, what are the signifiers of those cycles?
- What types of prejudice existed in the Middle East and the regions surrounding Khazaria, and were aspects of those prejudices tied to colonization?

Plan and investigate

Seeking an advisor for this project, the student reached out to the local First Nation to see if anyone in the community was currently taking or had recently taken a university-level history course. After connecting with a trusted community member enrolled at the university, the student began to correspond with him via email and social media to get advice about the project and research procedures. They also made plans to meet in the city (approximately two hours from the community) so they could visit both the university library and the downtown Vancouver library to do some research together.

The student reviewed APA guidelines and maintained electronic citations as she carried out her research. The student also decided to use iMovie to communicate her research and findings.

Analyze and interpret collected information and data

Using her research, the student completed an overview of Khazarian and Middle Eastern events during the Middle Ages. She also completed a series of timelines setting out the dates of invasions and colonial events in the region.

Evaluate and conclude

The student completed T-charts to compare and contrast colonial events in the Khazarian and Middle Eastern regions. She also completed a T-chart comparing and contrasting the colonial history of the local First Nation with the colonial history of the Byzantium Caliphate, which she had also been researching, in order to discern possible similarities.

Report and communicate

The student created an iMovie to present her questions, findings, and conclusions; it included spoken and written information, maps, and graphics. She also included details of the research processes undertaken, including live shots of her working with the university student advisor, conducting research at the libraries.

The film was shown to multiple audiences in the school and at the school community's year-end capstone showcase.

Teaching and mentoring tips

- When students are allowed to pursue investigations into topics of their choice, student investment in and ownership of the research is more likely. This student was highly curious about the topic of this inquiry, and this curiosity led to self-motivation and initiative.
- Regular check-in conversations with her Career-Life Connections (CLC) teacher-mentor throughout the *investigate and report* process provided opportunities for reflection on her progress in developing relevant researcher skills in the social sciences. In addition, these regular check-in conversations helped the student organize the research process into manageable chunks to keep her work on track.
- The relationship with her advisor, the university student (who was very generous with time and advice), was key to the student's success. Suggesting ways the student could express gratitude to the community advisor, and supporting her in these actions, was helpful in making the student aware of the significance of people volunteering valuable time and energy, and encouraged recognition of supportive community members.

Additional resources

- Writing Centre, UBC Faculty of Arts, Department of History
- Self-help and resources, UVic Centre for Academic Communication

Formative assessment

- The student and her teacher-mentor maintained an online calendar together as a means to check in to ensure that regular progress was made on the co-developed project management timeline and that milestones were being met.
- Over a period of four months, the student completed and submitted bi-weekly selfreflections on her progress in developing as an academic researcher, the hurdles she was facing, and the successes she was experiencing. These reflections were also an opportunity for the student to consider how to apply her new understandings and knowledge to other areas of life.



Showcase and celebrate

At the Capstone Showcase Dinner, the school community and members of the broader community were invited to join together for an evening of sharing and celebrating the soon-to-be graduates' learning journeys. The student chose to include what she had learned about herself as a researcher and how she planned to apply this self-knowledge to her post-secondary studies in history the following year. Her creativity in reporting research findings was also showcased by sharing the iMovie at this event.

Investigate and Report Illustration 2

STUDENTS REFINE COLLABORATION AND FIELD STUDY SKILLS



Self-assessment and critical analysis

Throughout the *self-assessment and critical analysis* component of their capstone preparation (see pages 15–21 in the Career Education 10-12 Guide for more information about the components of capstone), both student A and student B expressed how well they had collaborated on their career-life exploration component for Career-Life Connections (CLC) and how they hoped to continue to collaborate in some way on their capstone *presentation and representation* work. As the students were planning to pursue post-secondary studies in the sciences, they felt that the *investigate and report* process would be a good opportunity to strengthen their disciplinary learning and scientific research competence in preparation for their post-graduation plan. In consultation with their CLC teacher-mentor, they decided to collaborate on the field study aspects of the research process and to individually report out on their findings.



Process and representation

Learning focus: Refining collaboration and field study skills

Research topic: What factors are affecting our local water quality?

Context

Both students were inspired by their Environmental Science 11 coursework and their career-life exploration field study experience in CLC, where they participated in a mini-series on waterquality testing with an employee of a local municipal agency. They hoped to apply their learning to test water quality at local beaches, continuing to deepen their understanding of this environmental topic while refining their competence as researchers.

Connections

Curricular or domain connections

<u>Career Education</u> – Analyzing internal and external factors to inform personal career-life choices for post-graduation; Assessing personal transferable skills, and identifying strengths and those skills that require further refinement; Collaborating with teacher-mentor; Cultivating community relationships to support plans for post-graduation; Reflecting on learning experiences and personal development in the Core Competencies; Preparing for next steps in personal lifelong learning journey

<u>Environmental Science</u> – Demonstrating a sustained intellectual curiosity about an environmental topic of personal, local, and global interest, pursuing scientific method of inquiry

Mathematics - Data literacy and representation

Social Studies – Politics of water, social justice, and Truth and Reconciliation

<u>English Language Arts</u> – Gaining a repertoire of communication skills, including the ability to conduct interviews and share information in ways that engage the audience



Community connections

School community Local community Municipality Faculty of Science at local university

Connections to First Peoples Principles of Learning

Learning ultimately supports the well-being of the self, the family, the community, and the land: Including consideration of environmental and social ethics as part of their research, elaborating the importance of clean water to everyone's quality of life and to the well-being of all living things locally and globally, and that we all belong to the land

Core Competencies connections

Communicating - Connecting and engaging with others; Acquiring and presenting information

Collaborating - Working collectively; Determining common purposes

Critical and Reflective Thinking - Questioning and investigating; Reflecting and assessing

Social Awareness and Responsibility - Contributing to community and caring for the environment

Investigate and report process

Formulate an inquiry question to investigate

With the help of their Environmental Science 11 teacher, the students were able to refine their general concerns about water-quality issues into a manageable inquiry question for investigation: "How do local factors affect water quality, and, based on our findings, what recommendations can help our community sustain and/or improve water quality?"



Plan and investigate

The students decided to pursue the following investigation strategies to collect reliable information and data:

- Conduct academic research, including review of recommended articles from their Environmental Science 11 teacher
- Interview an expert at the local post-secondary institution to access relevant knowledge and elicit feedback and advice to enhance their research process
- Test and compare the water quality at various beaches, both fresh water and salt water

Analyze and interpret collected information and data

The students collaborated with each other to synthesize their research and interview notes, and worked together to analyze and compare their water-quality sample results.

Evaluate and conclude

The students collaborated to review what worked well during the study, to identify its limitations, and to draw conclusions about possible reasons for results. They also worked together to develop notes about the environmental and social implications and contributions of their findings to inform their individual reports.

Report and communicate

Individually, each student prepared a report on their research and findings. Student A decided to write up a formalized report, including tables and graphs, as written expression is his strength. Student A decided to write up a formalized report, including tables and graphs, as written expression is his strength.

Student B prepared an eight-minute informational video. Both reports, including recommendations for the community, were shared publicly on the school's website.

Teaching and mentoring tips

- Local district and school safety protocols were adhered to. As the students would be collecting water samples in several locations outside the school, the teacher-mentor
 - reached out to their guardians to confirm that they were available to transport the students to and from the various beaches, and would be supervising their activities.
- Collaboration with a science specialist the Environmental Science 11 teacher in this case – is helpful for students to access advice regarding disciplinary knowledge and competencies, criteria development, safety considerations, and connections to other community experts, such as the post-secondary expert.
- Including students in the development of their investigation plan and its accompanying criteria helps to clarify expectations and encourage student ownership. During regular check-in times with their CLC teacher-mentor, the students used the co-created criteria to describe what they had been working on and to plan next steps. The teacher-mentor provided guidance to ensure that the students' next steps were manageable and moved the project forward. See more tips in the *formative assessment* section below.

Additional resources

- What Makes a Question Essential?
- UVic Speakers Bureau

Formative assessment

- With input from the Environmental Science 11 teacher, the students and the CLC teacher-mentor agreed to the components and criteria for this capstone component. (See pages 82–85.)
- During the regular check-in conversations with their CLC teacher-mentor, the students often referred to the agreed-upon criteria to reflect on their growth in collaboration and field study competencies.

- The Environmental Science 11 teacher agreed to answer the occasional science-specific questions for these students throughout the process. This provided relevant formative input that deepened their disciplinary understandings and knowledge of this research topic.
- During their school's Capstone Display Open House, these students invited the postsecondary professor they had interviewed to view their reports and provide feedback on their display. They asked this expert to share with them two strengths of their research and one suggestion for further growth as researchers.
- In their CLC cohort, the students had been assigned to a triad with two peers, who they checked in with regularly every two weeks during class for peer feedback and advice regarding their capstone work. The students identified a specific area that they would like feedback or advice on from their peer support group.
- Drawing from all of the above assessment opportunities, each of the students met with their CLC teacher-mentor to determine their final mark for the capstone *presentation and representation* component, using the criteria they had co-developed.



Showcase and celebrate

At their school's year-end Capstone Display Open House, both students chose to share their key learnings about collaboration and field study research as an important stage in their personal lifelong learning journey story and elaborated how they planned to use these learnings in future research work during their post-secondary studies the following year.

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Capstone Process Sample Assessment								
Capstone Component: Self- Assessment and Critical Analysis	Continuum (No summative a	assessment takes	Student Notes	Teacher- Mentor Feedback				
		STU	DENT REFLECTIO	N				
	I articulate initial awareness of my Core Competency development with some connections to learning experiences and am beginning to reflect on my learning journey (past, present, and possible futures).	I articulate some of my Core Competency development, including relevant demonstrations of learning experiences, and am working on making sense of past and current learning experiences.	I clearly articulate my overall Core Competency development, including corresponding relevant evidence of learning experiences. Key insights, such as "aha!" moments, learning milestones and struggles, and hopes for the future are shared with relevant descriptions that explain how they were formative and personally meaningful.	I articulate my overall Core Competency development, including corresponding relevant evidence of learning experiences, and apply critical analysis of the learning journey to inform goal- setting and capstone process choices in support of plans for post- graduation.				

Capstone Component: Process and Representation	Proficiency Scale				Student Reflection and Evidence	Teacher- Mentor Feedback
	Emerging	Developing	Proficient	Extending	Notes	Notes
		INVESTI	GATE AND REPO	RT		
Formulate an inquiry question	The student identifies the broad topic or issue to investigate and indicates how it connects to plans for post- graduation.	The student refines the question or problem for study and relates it to the local community and/or a world topic or issue.	The student develops a focused question for study and outlines an accompanying manageable inquiry process plan to pursue the study, which includes milestones and timelines.	The student articulates the focused question and outlines the accompanying inquiry process plan, elaborating the study's potential impact for the community/ world and for personal growth as a researcher.		

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Capstone Component: Process and Representation	Proficiency Sca	Student Reflection and Evidence	Teacher- Mentor Feedback					
	Emerging	Developing	Proficient	Extending	Notes	Notes		
INVESTIGATE AND REPORT								
Plan and investigate	The student selects and applies research investigation strategies to collect information.	The student selects and applies appropriate research investigation strategies to collect information and data, assesses and mitigates environmental and social risks, and applies concepts of accuracy and validity.	The student selects and applies appropriate research investigation strategies to collect information and data, assesses and mitigates environmental and social risks, and applies concepts of accuracy and validity, through multiple iterations. The student applies feedback and advice from an expert researcher about best practices in field study for the inquiry process.	The student pursues a thorough investigation process, including observations and data collection that demonstrate the relevant concepts and terminology of the novice researcher, through multiple iterations. The student applies feedback and advice from an expert researcher about best practices in field study for the inquiry process.				
Analyze and interpret collected information and data	With support, the student analyzes the data collected, seeking potential patterns and trends related to the research question.	The student discerns trends in the collected data and checks in with a research expert for discussion about preliminary ideas and themes for feedback and advice.	The student discerns trends in the collected data and checks in with a research expert for discussion about preliminary ideas and themes for feedback and advice. The student clearly explains their interpretation process and how it connects back to the research question, and draws conclusions supported by the evidence.	The student elaborates their data analysis process and shares challenges faced in interpretation, describing how these were addressed. The student checks in with a research expert for discussion about preliminary ideas and themes for feedback and advice. The student incorporates communication enhancements, such as visuals, to synthesize complex trends in the data.				

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Capstone Component: Process and Representation	Proficiency Scale				Student Reflection and Evidence	Teacher- Mentor Feedback
	Emerging	Developing	Proficient	Extending	Notes	Notes
		INVESTI	GATE AND REPO	RT		
Evaluate and conclude	The student articulates the findings of the study, what worked well, and ways to improve future investigations.	The student shares findings, draws reasoned conclusions about factors related to the results, and makes recommendations for the community.	The student elaborates the findings, draws reasoned conclusions, shares validity and limitations of the study, and makes recommendations for the community, using appropriate scientific terminology.	The student elaborates the findings, draws reasoned conclusions, shares validity and limitations of the study, and makes recommendations for the community, using appropriate scientific terminology. The student shares the environmental and social implications of the findings, the study's contribution to the field of research, and reflections on their own biases and assumptions as a researcher.		
Report and communicate	The student reports out on their study.	The student shares their research publicly in a way that highlights the key findings and recommendations related to the inquiry question.	The student applies appropriate scientific communication strategies in their public report.	The student applies appropriate scientific communication strategies in the public report, seeking to engage the audience's interest and response in their reporting approach.		

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Capstone Component	Proficiency Sc	Student Reflection and Evidence	Teacher- Mentor Feedback			
	Emerging	Developing	Proficient	Extending	Notes	Notes
		SHOWCA	SE AND CELEBRA	ATE		
	The student shares the investigate and report experience as a component of their capstone showcase.	The student shares the <i>investigate and</i> <i>report</i> experience, describing personal learning and growth related to their collaboration and learning goals as a component of their capstone showcase.	The student shares the <i>investigate and</i> <i>report</i> experience, elaborating in what ways their research experience relates to their growth as a researcher and to their overall lifelong learning journey.	The student shares the <i>investigate and</i> <i>report</i> experience, elaborating in what ways their research experience relates to their growth as a researcher and to their overall lifelong learning journey, reflecting on how they plan to apply their learning to next steps and future plans for post- graduation, and how these plans align with who and how they hope to be in the world as a young adult.		