Tool Design and Development

Type of tool: Oral presentation rubric.

Primary Purpose: To develop students' verbal communication skills and assess their comprehension of the prescribed learning outcomes (identified below).

Grade and subject: Science 10.

Intended Curriculum: Provincial Curriculum, Ministry of Education, British Columbia.

Learning outcomes/criteria:

B1: Explain the interaction of abiotic and biotic factors within an ecosystem.

- Identify distinctive plants, animals, and climatic characteristics of Canadian biomes.
- Explain various relationships with respect to food chains, food webs, and food pyramids.
- Identify the effects on living things within an ecosystem resulting from changes in abiotic factors.

B2: Explain various ways in which natural populations are altered or kept in equilibrium.

- Explain how species adapt or fail to adapt to environmental conditions
- Describe the impact of natural phenomena.
- Give examples of how foreign species can affect an ecosystem.
- Research and report on situations in which disease, pollution, habitat destruction, and exploitation of resources affect ecosystems.

(Science 10, Integrated Resource Package, 2008, pp. 42-43)

Length/Format: Individual, 5-8 minute in-class presentation.

Function of results: This assignment will assess whether students have met the suggested achievement indicators and allow me to assign each student a section grade (summative). This exercise will also allow me to provide students with descriptive feedback for the development of their oral presentation skills (formative).

Frame of reference: Criterion referenced.

Marking Scheme: Another instructor and I will be assigning students a composite grade out of 20 according to the criteria outlined in the attached rubric (5% of final grade). This presentation will act as a summative assessment for students' comprehension of the Community Ecology section of the Science 10 Biology unit. I will also provide descriptive feedback that will serve as part of an ongoing formative assessment framework to promote the development of students' oral presentation skills.

Accommodations: I will be using this assessment tool for two Science 10 classes. There are five ELL students in the first class and none in the second class. There are no student IEP requirements in either class. As with any academic conference, each student will be given the choice of delivering a seminar or a poster presentation. Both options exercise students' oral presentation skills; however, seminars are presented to the entire class, whereas poster presentations are carried out in a smaller informal setting. In both cases, students have to verbally present their work but those who are not comfortable speaking in front of the whole class have the option of presenting to smaller groups. See below for further accommodations made for all students, which will facilitate English language development.

Relation to teaching, other assessments: I will be teaching two Science 10 classes for the duration of my ten week practicum. During this time I will be delivering the Biology unit in its entirety. I chose an oral presentation as a summative assessment because I strongly believe that students' ability to verbally demonstrate their knowledge is a practical skill that is applicable to a variety of disciplines. Although, I will be using the oral presentation as a summative assessment, it will also be part of a larger, ongoing formative assessment process designed to help native-English speaking students, as well as ELL students, develop their verbal communication skills. Because I selected an oral presentation assessment, I provide students with several opportunities to develop their verbal communication skills before they are required to present. I start by co-creating an oral presentation rubric with the students, where we can identify the key components of an effective presentation. The attached rubric provides guidelines for what I believe makes a good presentation; these can be modified and extended based on student input. Creating the rubric will be a metacognitive exercise to help students focus their learning and plan for success. Establishing the assessment criteria early will allow students to gradually develop the skills necessary to deliver an effective oral presentation. By developing these skills sequentially, rather than simultaneously, students will be able to master one skill before moving on to the next. This will prevent cognitive overload.

I plan to use collaborative classroom structures to encourage students to verbally express ideas with their peers. This will allow students to become comfortable speaking in small to large group settings. I will also use a number of peer and self-assessment exercises related to these activities to help students track their skill development. Throughout my placement, I will also have the students create catalogues of visual vocabulary cards, which they will use in a number of review activities in preparation for quizzes. This will allow students to build their vocabulary and practice their elocution. During group activities, I will be providing descriptive feedback and modelling good oral presentation techniques.

Finally, the oral presentation will require students to research and report information; as such, they will also need to develop research skills. The collaborative activities I describe above will also promote effective research techniques.

Brief Description of the Task/Tool: I will ask students to research and present information about an endangered species to demonstrate their knowledge of community ecology. I will set up a simulated Biology conference where each students will act as expert on a single endangered species from British Columbia. The students will describe the species' habitat, how it is uniquely adapted to that habitat, what anthropomorphic influences have led to its 'endangered' designation, plus a plan to help the species recover. The conference will occur over two days and will begin with a keynote address from a 'visiting academic' (another Biology instructor). We will then proceed with seminar and poster sessions, separated by appropriate meal breaks. I will group seminar presentations by individual biomes, so that students are considering one biogeographic region at a time. The seminar format will include a 5-8 minute oral presentation followed by a 2 minute question and answer session. The poster sessions will also be grouped by individual biomes. During the poster session, presenters will describe their research and answer questions from other conference attendees (i.e. their peers and instructors) for 7-10 minutes. Myself and another instructor will assess each presentation according to the attached rubric and create a composite grade that will act as each student's final mark for this assignment. The attached grading rubric is suitable for both seminar and poster presentations. This activity will allow students to build their presentation skills in a setting that has real-world applications.

Considerations for High Quality Assessment:

Reliability — I will use this activity to assess both oral presentation skills and content knowledge. The assessment will be outcome-referenced according to criteria that

students and I establish during the creation of the presentation rubric. Importantly, this will allow me to establish a reference framework with explicit criteria that prevents me from grading students relative to their past performance or the performance of their peers. Using this method, I will be able to reliably assert whether or not the student has met the intended learning outcomes during their presentation.

Because my goal is to assess students' verbal communication skills at the same time as content knowledge, all students will be restricted to an oral presentation. However, I will provide some flexibility in the format in which students present. For example, students who are confident speakers but struggle with written communication can choose the seminar option, which has a strong verbal component and a relaxed written component. Alternatively, students that prefer written work can choose the poster option, which has a more comprehensive written component and a more relaxed verbal component. Note that the content requirement in this assignment does not vary between the two presentation formats. By providing these options, students are able to select a presentation style that builds on their individual strengths and is more likely to represent their content knowledge.

Finally, another instructor and I will grade each student's presentation and create a composite grade for the assignment. If the marks we assign each student are similar, then I can be confident that the assessment tool (i.e. the rubric) is reliable. If the second instructor and I have large disparities between our grades, I may have to consider that the marking criteria in the rubric were not clear, which could compromise the reliability of my assessment. Collectively, these strategies should produce adequate checks for reliability.

Validity — The formative process that I describe in the "Relation to teaching, other assessments" section above will allow me to accurately interpret the results of this assessment. By co-creating the rubric with my students at the outset of this assignment, I can ensure that the rubric and task description are consistent with my teaching and learning activities, as well as my learning outcome criteria. As a result, my summative assessment should accurately evaluate students' content knowledge and presentation skills. Furthermore, should my interpretation of the results be called into question, my formative assessment records will show that I made students explicitly aware of the required learning outcomes and provided them with multiple opportunities throughout the learning process to meet these outcomes during the summative assessment.

Fairness — The assessment I have designed meets all six of Tierney's (2013) requirements for fair assessment. First, my co-construction of the rubric with students

and my outcome-directed formative assessment will ensure a high level of transparency where students are able to inform the assessment process and understand the summative assessment criteria. Second, my formative learning process will make sure that all students have ample opportunities and resources to develop the skills necessary for the summative assessment (e.g. collaborative group structures, assessment for learning, and assessment as learning). Third, students will have several opportunities to demonstrate and reflect on their learning, plus receive critical feedback from myself and their peers. Fourth, the alternative presentation styles that I offer for the summative assessment mean that students can demonstrate knowledge in a way that suits their individual strengths but does not compromise the consistency of the work being presented by each student. Fifth, students and I will have multiple opportunities to reflect on the assessment criteria and consider whether or not this assessment process aligns with the intended learning outcomes. Finally, the formative assessment process will promote a positive learning environment where students are accountable for their own development and the development of their peers. In both the formative and summative assessments, students will receive descriptive feedback that respectfully identifies areas for improvement.

Even though I have tried to structure the assessment process in a way that considers the unique abilities of my students, while maintaining the consistency of the intended learning outcomes, my summative assessment may be perceived as unfair. This is due to the fact that the focus on verbal communication disadvantages some students (e.g. English language learners, and introverts). It is true that some students may be less comfortable performing an oral presentation than others. However, I have tried to include an alternate assessment strategy to mitigate students' discomfort. Further, I believe that verbal communication skills are critical for students' personal and professional development, and that we should be building these skills outside of traditional language classes.

2015 British Columbia Biodiversity Conference

Dear colleague,

Please accept this invitation to present your research at the British Columbia Biodiversity Conference at West Vancouver Secondary School. The conference will take place from April 17th and 20th, 2015. You and 48 other researchers will present your findings on endangered plant and animal species in British Columbia. All presenters have the option to deliver a seminar or a poster presentation. Seminars will include a 5-8 minute talk followed by a 2 minute question and answer session. We ask that all presenters strictly adhere to the prescribed time limit. Poster presentations will occur simultaneously in the conference ballroom (C338) and researchers will be able to describe their work in an intimate group setting. All seminar and poster presentations will include the following information:

1. An **introduction** to your focal species, including an **interesting fact**.
2. A **map** showing the biome where your species is located (including latitude and elevation).
3. The average monthly precipitation and temperature for that biome over a one year period. Presenters are asked to use the **climatogram** format**.**
4. A description of the **biotic and abiotic** features of the biome.
5. A detailed explanation of the **physical and behavioural adaptations** of the researcher's species to a specific biome (if your species is a **generalist**, explain how you know this to be true).
6. An outline of a **food web** that includes your species, and an identification of your species' **trophic level**.
7. A description of any **symbiotic relationships** your species shares with other organisms.
8. Identify the **environmental factors** (i.e. pollution, habitat destruction, invasive species, etc.) that have caused your species to be listed as endangered. Explain whether or not **humans** are responsible for these factors.
9. A novel **recovery strategy** for your species.
10. A **bibliography** detailing the resources (books, journals, websites, etc.) you used during your research.

Researchers are asked to submit a presentation outline—including your focal species and the associated biome—by March 31st, 2015. All researchers will be given 154 minutes (2 blocks) of research time at our state of the art research facility (library), and a further 77 minutes (1 block) of time to prepare their presentations. Please see the attached rubric for more details about presentation guidelines.