



THE UNIVERSITY OF ARIZONA

CERCLL

Center for Educational Resources in
Culture, Language and Literacy



THE UNIVERSITY OF ARIZONA

College of Humanities

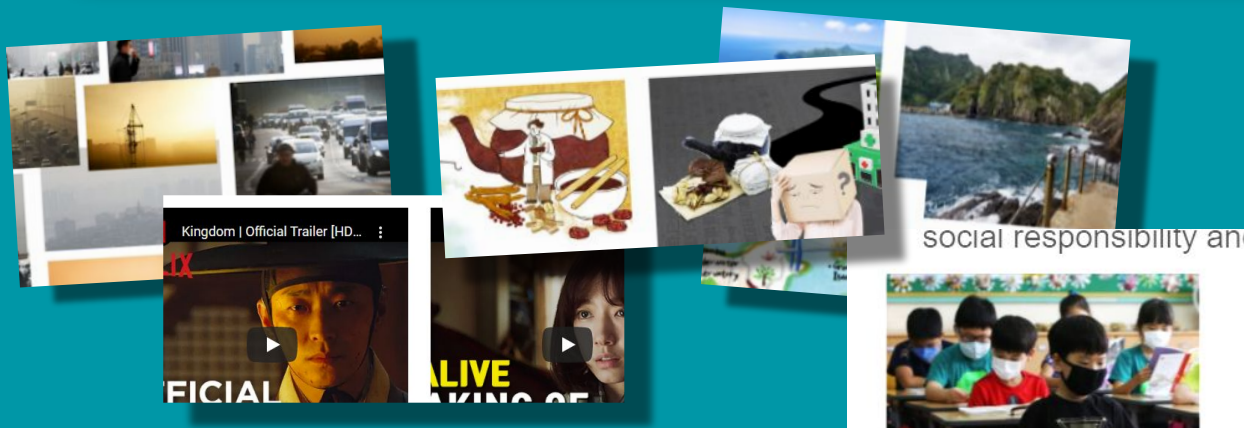


Exploring Socioscientific Issues in Language Classrooms



COLLEGE OF HUMANITIES

East Asian Studies



Sunyoung Yang

Jieun Ryu

Youngae Kim

Sojung Chun

Seungmin Eum

Seojin Park

Overview of Today's Webinar

1. Introduction of the team
2. SSI in STEM education
3. Implications of bringing SSI into language classrooms
4. Characteristics of SSI Reasoning
5. Case 1: Western/Eastern Medicines
6. Case 2: COVID-19 Pandemic
7. Case 3: Eco-friendly Travel
8. Spin-off: Guided Use of Machine Translation
9. Instructor manuals for SSIs in language classrooms
10. Example archive of SSIs
11. Q n A

Sunyoung Yang

- Training in cultural anthropology
- Specializing in technologies and society
- Directing the Korean language program at UArizona
- Classrooms as everyday field sites



Jieun Ryu

- Training in Second Language Acquisition and Teaching
- Specializing in technology in L2 teaching and learning, LCTL pedagogy, and self-directed learning
- Developing the initial Korean language curricula at UArizona
- Directing the Critical Language Program at UArizona



Young Ae Kim

- Training in STEM education
- Specializing in teacher education, formative assessment, and integration of socioscientific issues in STEM as well as language learning
- Assistant professor at the Defense Language Institute Foreign Language Center



Sojung Chun

- Training in language education and history
- Korean instructor of East Asian Studies at UArizona
- Years of experience teaching Korean at different levels of K-16



Seungmin Eum

- Training in Second Language Acquisition and Teaching
- Specializing in syntax, sentence processing, L2 sentence development, and language education in KFL
- Years of teaching experience of Korean as L2 both in the U.S. and South Korea



Seojin Park

- Training in Second Language Acquisition and Teaching
- Sociolinguist working on the dissertation project on North Korean refugees' English learning
- Specializing in identity (re)construction and L2 learning/teaching of socially and culturally minoritized groups of learners/teachers
- Teaching experience of English and Korean as L2



Socioscientific Issue (SSI) in STEM Education

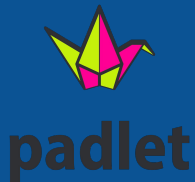
- Complex global issues can be addressed by the **integration** of knowledge and skills of multiple disciplines among STEM. (Bybee, 2010, Kelley and Knowles, 2016; Roehrig et al., 2021)
- **Socioscientific Issues (SSI)** have been termed by Sadler (2004), emerging from the connection of science and society.
- SSI can serve as meaningful contexts in STEM curriculum as SSI situates learners to solve real-world problems in an integrated manner. (Zeidler, 2014; Owens and Sadler, 2020).
- SSI are controversial social issues related to science (Zeidler & Keefer, 2003) which are ill-structured, open-ended problems with multiple solutions (Sadler, 2004)
- SSI examples: Cloning, GMO, the use of nuclear fuel, Global warming, etc.



Implications of Bringing SSI into Language Classrooms

- Science and technology are deeply rooted in our everyday lives
- Authentic contemporary Korean context
- Combining SSI reasoning with the use of Korean

Examples: fine dust, Covid-19, environmental issues, etc.



What kinds of SSI topics do you think applicable/fit to your curriculum?

Characteristics of SSI Reasoning

- **Complexity** - complex **contextual and multiple factors** (e.g., scientific, socio-economic, political, geographical, cultural context)
- **Multiple perspectives** - **various and well-reasoned positions** by interested parties (e.g., governors, experts, educators, social workers, or personal views)
- **Inquiry** – **ongoing investigation** with **multiple solutions** of the issues
- **Skepticism** – **contradictions/conflicts among stakeholders**
- **Morality and ethics**

A graphic titled "Weekly Project" showing four students (three men and one woman) sitting around a table, engaged in a collaborative project. To their right is a circular diagram with various icons representing different aspects of a project, including a hand, a leaf, a bowl of pills, a gear, a paint palette, and a heart.

Weekly Project

Case 1

SSI in L2 Classrooms

“Project: Western/Eastern Medicines”

(in Fall 2019)

Class Information

- Language Level : KOR 201 (Low-Intermediate)
- Participation: Two sections of KOR 201 (Fall 2019): 23 students and 20 students each
- Class mode: 50 minutes / In-person
- Total time estimate: A total of 13 times (13 x 50 min.) including project preparation and presentation
- Technologies used: Internet connection, Google slides, D2L, web-cam

Learning Objectives

Students will be able to

<SSI content knowledge & SSI Reasoning>

- Recognize the different viewpoints between Western and Eastern medicine approaches;
- Practice SSI reasoning for decision-making in our daily lives
- Acquire and use Korean medical vocabulary

<Situated Learning>

- Have daily-life knowledge related to hospital and health information such as doctor profile, symptoms, body parts, and folk remedies;
- Use classroom grammar items and words under realistic situations such as introducing a clinic's location and creating a clinic introduction YouTube video.

Sequence of the SSI Project

Introduction

- K-drama cliché
- Concept of socioscientific issues
- Discussion - SSIs in medical field
- Clinic homepage & video clip samples

Research & Language Learning

Doctor's Office

- [Listening & reading] Clinic introduction video
- [Reading] Doctor profile
- [Reading] Clinic location

[Listening & Reading]
Medical school systems in Korea

Western/Eastern approaches to a cold

- [Reading] a webtoon
- [Listening & Reading] YouTube videos and blogs
- [Research & Presentation] - approaches/principles; symptoms; treatments; preventions

Final Project

- YouTube video - clinic promotion and cold prevention suggestions
- Clinic homepage (Fakebook) - doctor profile, office location, and clinic information

Students' Samples: Worksheets

Day3_Wk1_Reading Comprehension

경희미르한의원 위치 소개

경희미르 한의원 광진점은 버스나 자동차로 오실 때는 2층에 위치하고 있습니다. 1층에는 현재 **미디어 커피숍**

지도로 보실 경우, **잠실대교** 북쪽 사거리, 또는 북쪽 교북쪽으로 건너는 방향에서 볼 때, 오른쪽에 있는 버스

지하철로는 **구의역 4번** 출구로 나와서, 사거리에서 왼쪽 따라 5분 정도 걸어내려오면 되는데, **해피데이 스파라**

주변에 와서 찾으실 때는 항상 버스 정류장 뒤 2층이라

경희미르한의원 광진점을 유튜브에 검색하시면 한의학가볍게 찾아보시고, 도움이 되면 좋겠습니다.

<https://www.youtube.com/watch?v=3TOXu0mlQ2w>

1. Trace the way to the hospital from 구의역 on f



여러분의 병원은 어디에 있어요?

Group 2

도시: 서울 아현동

주소: 서울특별시 마포구 아현동 346-5

장점:

- 1) 지하철 2호선과 가깝게 있어서 교통이 매우 편리합니다.
- 2) 학교가 가까이에 있어요. 스트레스를 받은 학생들은 즐겨요.
- 3) 근처에 많은 주택가가 있어요.

오시는 길:

지하철로는 아현역 4번 출구로 나와서, 사거리에서 왼쪽으로 도세요. 걸어서 5분 걸려요 가세요. 그럼요, 우리한의사 있어요.

지도:



(O)



전문의 시험



Students' Samples: Eastern Medicine Research

Group 1

한의학 Eastern treatments

한방 치료 원리, 감기 증상과 처방 그리고 예방

감기는 왜 걸려요?

1. 날씨가 추울 때.
2. 환절기.
3. 손을 안 닦아서 / 안 씻어서.
4. (갑자기) 비를 맞아서, 눈이 와서, 에어컨 때문에



감기에 걸리면 어디가 어떻게 아파요?

1. 머리가 아파요.
2. 콧물 있어요.
3. 너무 피곤해요.
4. 배가 아파요.
5. 열이 나요.



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감기에 걸리면 뭘 해야 돼요?

1. 꼭 쉬다 - "휴식".
2. 꼭 자다 - "수면".
3. 환기(refresh air)를 하다.
4. 따뜻한 물/보리차/... 많이 마시다.
5. 얼음팩(an ice pack)을 사용하다, 얼음(or a hot towel) 찜질하다(steam).

Eastern Medical Approach to a Cold

1. 매실차, or Korean plum tea. (helps fight fatigue as well as indigestion)
2. 죽 is a warm porridge made from rice, beans, sesame and red beans (azuki). (very soft and easily digestible dish. The grains are full of nutrients and help replenish the body's needs)
3. Kongnamulguk, or soybean sprout soup. (that's perfect for indigestion or when you're feeling queasy. High in vitamin C and low in calories)
4. 유자차, yuja tea made with citrus and honey.



Students' Samples: Western Medicine Research

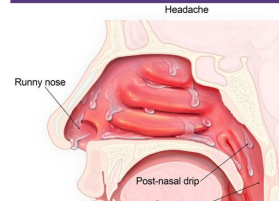
Group 3

서양 의학 Western treatments

치료 원리, 감기 증상과 처방 그리고 예방

감기는 왜 걸려요?

1. 예를 들면, 늦게까지 잠게 놓고 비가 오면서 밖에 놓고 환절기라서 감기에 자주 걸려요.
2. A common cold is caused by viruses, rhinoviruses are the most common
3. A cold virus enters your body through your mouth, eyes or nose.
4. The virus can spread through someone who is sick coughs, sneezes or talks.



Symptoms & Treatments

감기에 걸리면 어디가 어떻게 아파요?

1. Runny or stuffy nose
 2. Sore throat
 3. Cough
 4. Congestion
 5. Slight body aches or a mild headache
 6. Sneezing
 7. Low-grade fever
 8. Generally feeling unwell
- 예를 들면, 많이 쉬고 실내 공기에도 신야 해요.

감기에 걸리면 뭘 해야 돼요?

- Pain relievers.
- Decongestant nasal sprays.
- Cough syrups.



Cold Prevention Tips

감기에 걸리면 뭘 먹어야/마셔야 돼요?

1. 감기에 걸릴 때 찬 음식을 먹지 않고 죽을 먹어야 해요. 예를 들면, 찬 물이 마시지 말고 뜨거운 물 많이 마셔야 해요.



감기에 안 걸리고 싶어요. 어떻게 해야 돼요?

- Wash your hands.
 - Disinfect your stuff.
 - Use tissues.
 - Don't share.
 - Steer clear of colds.
 - Choose your child care center wisely.
 - Take care of yourself.
- 감기에 안 걸리기 때문에 따뜻한 옷을 입고 비타민 먹어야 해요.

Final Project (1/2)

K201 Final Project Guideline

- Students will make a video in Korean to complete the following tasks: *Imagine you are a Korean doctor and a YouTuber. As a doctor, you are making a video about a cold, including its causes, symptoms, prescription, and some medical advice. Following your group's theme, you want to take either the western or eastern medical approach. Please complete your video with introductions about doctor(s) and your medical clinic.*
- To complete the tasks, please use the content that you learned in this course. Your video should provide strong visual support for your audience.

Requirements

- The video should be about 4-5 minutes in total, and you can use any video-creating programs of your choice for this project.
- In the video, you can include some PowerPoint slides with the sentences and visual elements, such as pictures or photos that are relevant to your topic. You want to do a voice-over (reading the sentences you wrote) on the slides.
- Doctor(s) or patient(s) need to appear in the video, but not every group member has to appear in the video. You can take different roles to complete this project, such as making slides, making a video, or acting as a doctor or a patient. Please write down every group member's role and how you participated when you submit your project.

Grade

- Script (2%) + Video (3%) = 5% of your total grade

Final Project (2/2)

Grammar elements

This is the recommendation of the grammar elements to use. Check the list below.

The benefactive expression ~어/아 주다		The adverbial form ~게	
Obligation or necessity: ~어/아야 되다		Negative commands ~지 마세요	
~(으)ㄴ 수 있다/없다 'can/cannot'		~(으)면서 'while ~ing'	
Noun 때문에		The nominalizer ~기 / ~기 때문에	
N (이)라서 'because it is N'		Negation ~지 않다	
The negative ~지 못하다		The conditional ~(으)면	
~(으)ㄴ줄 알다 / 모르다		N 때 / ~(으)ㄴ 때 'when'	

Guiding questions

Try to answer these essential questions below (not mandatory).

(About a cold)

1. 감기는 왜 걸려요?
2. 감기에 걸리면 어디가 어떻게 아파요?
3. 감기에 걸리면 뭘 해야 되요?
4. 감기에 걸리면 뭘 먹어야/마셔야 되요?
5. 감기에 안 걸리고 싶어요. 어떻게 해야 되요?

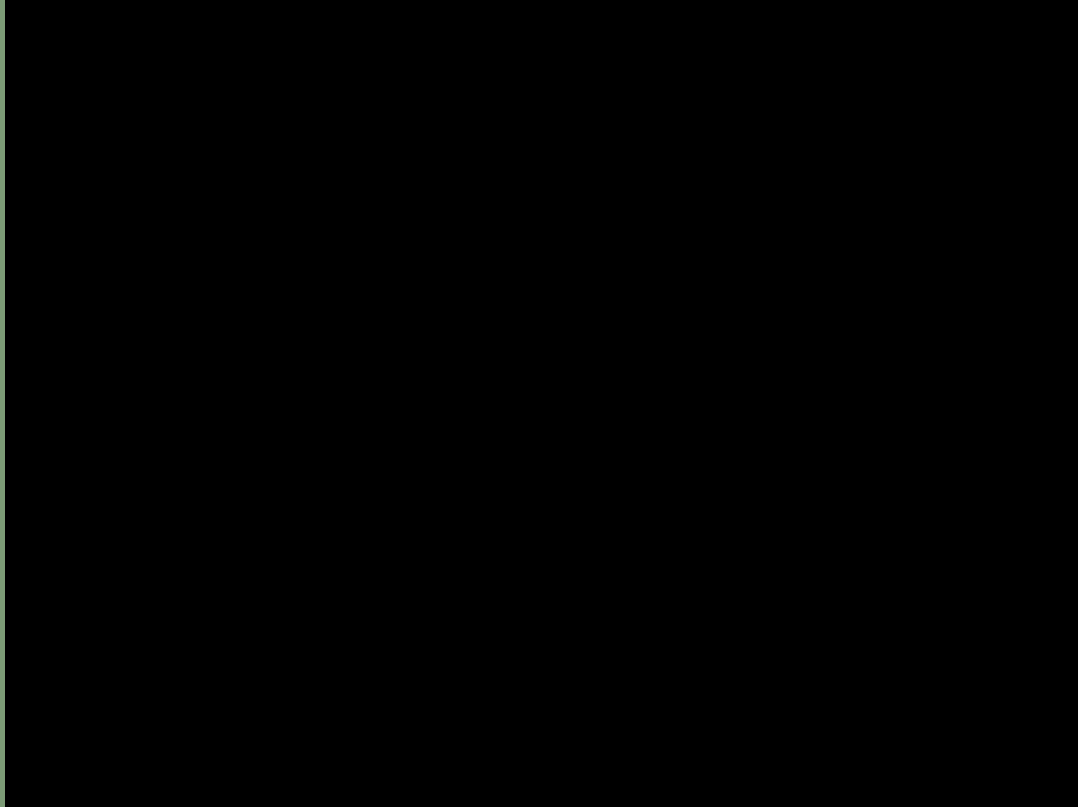
(About the doctor)

1. 의사의 전문 분야가 뭐예요?
2. 언제 진료 하세요?
2. 약력과 학력이 어떻게 되세요?
3. 의사의 비전이 있어요? 있으면 뭐예요?

(About the medical clinic)

1. 그 병원은 어디에 있어요?
2. 무슨 병원이에요?
3. 병원을 찾아가고 싶어요. 어떻게 가야 해요?
4. 그 병원의 장점이 뭐예요?

Final Product: Doctor's YouTube Video



SSI Discussion & Wrap-up

What are some common features in western and eastern food for a cold? Why do you think people eat that kind of food for a cold? Are the reasons why people in the east and west eat certain food for a cold similar?

Although there are different symptoms of a cold, it seems that people use very similar preventive measures and treatments for each symptom. For example, people eat chicken noodle soup and drink ginger tea for a fever as well as a sore throat. What do you think about these kinds of common treatments for different symptoms?

Do you think that vitamin C can help prevent a cold? Currently research findings about the effect of vitamin C are inconsistent. Why do you think that people believe vitamin C can help prevent or treat the common cold?

Can you describe the possible mechanism related to the action of vitamin C in the immune system?

Why do you think that there are similar treatments for a cold in western and eastern cultures, for example, in the U.S. and Korea?

Think about ways to prevent a cold. Can you describe the ways in which cold prevention measures (such as daily practices, types of food, or medicine) might help the immune system?

Lessons from the First Project

- SSI topics are around us.
- Instructors can control the degree of SSI integration into a language classroom.



Semester-long weekly project
VS
Intensive final week project

Case 2

SSI in L2 Classrooms

“Project: Pandemic COVID-19”

(in Spring and Fall 2020)

Class Information

- Language Level: KOR201 (low intermediate)
- Classes: two classes of 25 and 23 students
- Class mode: 50 minutes / Live online
- Total time estimate: Total 11 classes including project preparation and presentations
- Technology Approach/Requirements: Internet connection, Google slides, Google doc, D2L

Learning Objectives

Students will be able to

- Reflect their knowledge of COVID-19 as an SSI
- Develop L2 skills and strategies related to COVID-19
- Recognize scientific evidence behind COVID-19 practices
- Interpret COVID-19 practices as cultural product
- Apply SSI decision-making practices
- Create a meme as a sociocultural product related to COVID-19

KOR201 SSI PROJECT

Day 1 (9/11)

Introduction to
SSI-based
language learning

Day 2 (9/18)

Getting used to
Covid-19
vocabularies

Day 3 (9/25)

Social distancing

- Scientific evidence behind social distancing
- Say social distancing measures in Korean

Day 4 (10/2)

Wearing a mask I

- Scientific evidence behind wearing a mask
- Say mask-related expressions in Korean

Day 10 & 11 (11/12 & 11/13)

Final project
presentation

Day 8 & 9 (10/30 & 11/6)

Final project prep

Day 7 (10/23)

Covid-19 and
different cultural
practices

- Interpreting and creating memes

Day 6 (10/16)

Scenario-based
Covid-19 discussion
and practice
decision-making
processes

Day 5 (10/9)

Wearing a mask II

- Culture discussion
- Role-play activity based on the expressions from day 4

Activity Example

Day 6: Scenario-based decision-making practice (Part 1)

Mass Infection: Stores at Risk

Situation

For a couple of months, the virus had not appeared to be widespread among grocery workers and shoppers despite the concern of many health experts. Recently, however, several infection cases among grocery-store workers were reported in City M. According to the city health department report, at least 20 residents started showing flu-like symptoms after visiting the stores where the infected grocery-store workers worked. The city government took this situation as a serious threat to public health and decided to strengthen infection prevention measures during shopping. As one of the follow-up measures, the City M government made an order that each store should update their safe shopping guidelines and enforce them.

Currently, you are working as a store manager of a supermarket.

Mission

One of the large grocery supermarket chains G, held an emergency meeting and decided to quickly respond to the government order. As a branch supervisor of G, you need to hear various opinions from customers, store staff, and health & safety officers and create safe shopping guidelines for your store branch. Considering each stakeholder's demands, which may have conflicts, you should embrace their different ideas as much as possible so as to minimize potential complaints and contribute to public health.

Activity Example

Day 6: Scenario-based decision-making practice (Part 2)

Mass Infection: Stores At Risk

Reflect on your essay with the lens of the following SSI elements.

- 1) Which part reflects the inherent *complexity* of an issue?
- 2) Which part reflects *multiple perspectives*?
- 3) Which part reflects the idea that issues are subject to ongoing *inquiry*?
- 4) Which part reflects your *skepticism* on possibly biased information?

Activity Example

1. Keyword

Choose the mask that best matches each description.



- a. KF80 b. 방진 마스크 c. 일회용 부직포 마스크 d. 면 마스크 e. KF94 마스크

- _____ 한 번만 사용 할 수 있어요.
- _____ 여러 번 사용 할 수 있어요. 최근에 있는 바이러스를 막아 줄 수 없어요.
- _____ 평균 0.6 μ m 크기의 미세입자를 80% 걸러낼 수 있는 마스크
- _____ 평균 0.4 μ m 크기의 미세입자를 94~99% 걸러낼 수 있는 마스크
- _____ 공사 현장에서 사용되는 마스크, KF80 과 KF94의 중간 정도의 성능

2. Infer the unknown words - guessing meaning from context

침:

막다:

걸러내다:

미세입자:

방진:

6. Interpersonal - Conversation with your partner in Korean [Breakout room]

아래 질문에 대한 답을 한국어로 해 보세요.

- 마스크를 살 수 없으면 어떻게 할 거예요?
(What would you do if you don't have any facial masks?)
- KF80, KF94, 방진 마스크가 없으면, 어떻게 미세입자를 걸러낼 수 있을까요?
(If you can't get KF80, KF94, or 방진 마스크, what would you do to effectively filter any microparticles and virus?)

Final Project

- Creating a meme as a pair regarding COVID-19 and providing the reasoning on their decision-making about multiple modes and messages
- Composing memes with native Korean speakers in mind as the audience/readers, reflecting what they learned from the analysis of the memes created by native Korean speakers

Students' Samples: Final Products

북한은 코로나
바이러스
치료를 찾았어요.



총알



내가 생각하기에 나는 코로나 19동안
이렇게 생겼어요:



나는:



코로나19 후에



A:배가 아파

B:여기

코로나19 전에



A: 배고파

B: 여기

Students' Samples: Final Products

15주의 자가격리...



어머님: 오늘 또 새로운 조리법이야?

며느리: 네 어머님. 근데 6피트 뒤로 물러 서세요!

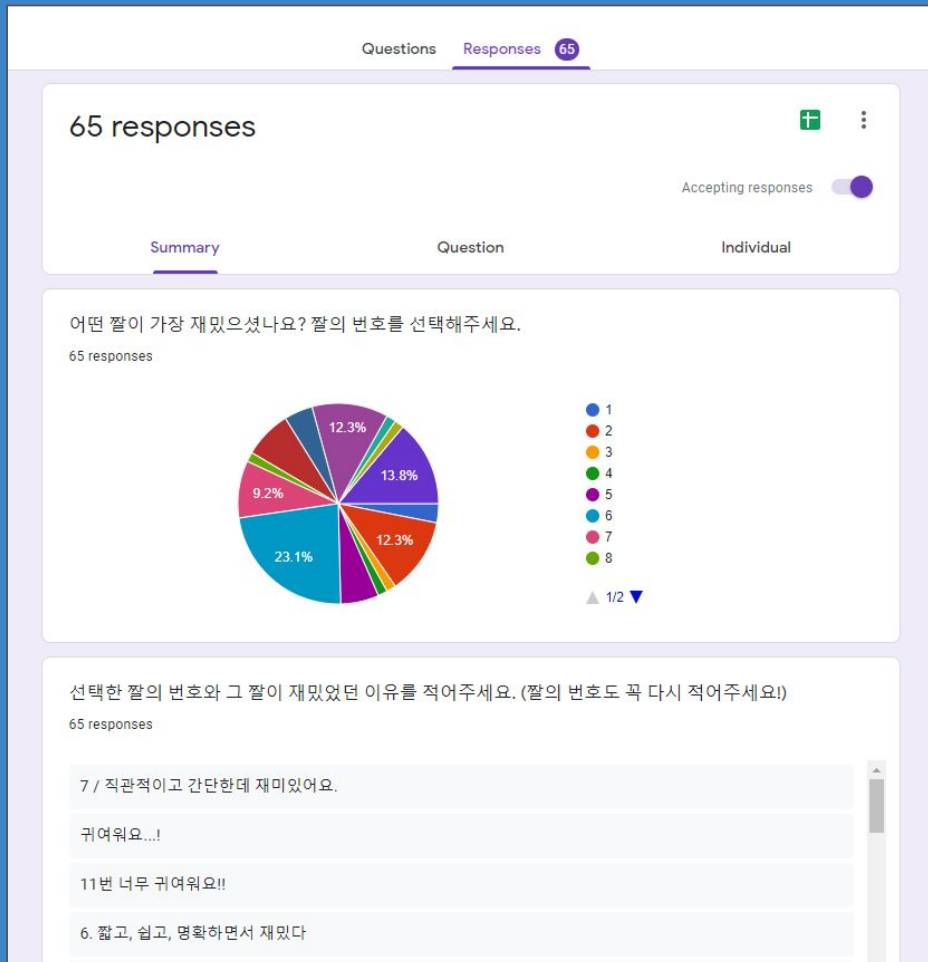
15 weeks of Quarantine...

Mother-in-law: Is it another new recipe, today?

Daughter-in-law: Yes, mother. By the way, stand 6-feet back from me, please!

Assessment (Feedback)

- Peer Feedback: the design and messages of their works
- Votes and comments from 1) their classmates and 2) anonymous native Korean speakers through Google Forms



Case 3

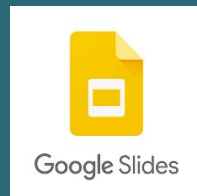
SSI in L2 Classrooms

“Eco-friendly Travel Project”

(in Spring 2021)

Class Information

- Language Level : KOR 202 (Low Intermediate)
- Classes: two classes of 19 students and 23 students
- Class mode: 50 minutes / Live online
- Total time estimate: Total 10 classes including project preparation and presentation
- Technology Approach/Requirements: Internet connection, Google slides, Jamboard, Thinglink, D2L



Learning Objectives

Students will be able to

- Plan a trip to Korea concerning eco-friendly factors
- Create a digital travel brochure using Thinglink
- Understand various authentic materials related to environmental issues
- Develop L2 language skills and strategies regarding environmental issues
- Raise awareness of the green benefits and apply scientific and moral reasoning to real-world situations

KOR202 SSI PROJECT

Day 1 (4/22)

Planning a trip to Korea

Earth Day!

Day 2 (4/23)

Getting to know about the weather in Korea

Day 3 & 4 (4/26 & 27)

Fine dust

- Scientific evidence behind fine dust
- Social issues behind fine dust
- Possible scenarios

Day 5 (4/28)

Eco-friendly travel

- What is it?
- Scientific evidence behind eco-friendly travel
- What do we want to do to practice it?

Day 10 (5/5)

Final project presentation

Day 8 & 9 (5/3 & 4)

Final project prep
- Creating a digital pamphlet for eco-friendly travel

Day 7 (4/30)

Transformation of travel plans

- Understanding eco-friendly travel in depth
- Transforming original travel plans into eco-friendly travel plans

Day 6 (4/29)

Carbon footprint

- What is carbon footprint?
- What is carbon footprint labeling?
- Exploring examples of eco-friendly travel

Building Lessons

Day 1

Introduction

Students plan a trip to Korea



Day 2-6

SSI contents

Weather and fine dust
Eco friendly travel
Carbon footprint

Language Activities

Watching video clips
Reading webtoon
Role play
Summarizing
presentation



Day 7-10

Final Project

Modifying their plans to be eco-friendly

Creating digital brochure

Presenting the plan

Writing a reasoning paragraph

Sample Activity

Day 3 Research

미세먼지 조사하기

한국인의 일상생활에 깊숙히 들어와있는 미세먼지에 대해 조금 더 자세히 알아볼까요? 아래 질문들을 바탕으로 필요한 내용을 같이 조사해보세요. **내일 조사 내용을 발표해요.** (발표와 조사는 영어로, 한국어로 1-2 문장 요약)

정의 / 성분	건강에 대한 영향과 대비책	원인과 대책
-미세 먼지의 뜻이 무엇입니까? -일반 먼지와 어떤 차이가 있습니까? -원사? -조미세먼지? -미세 먼지에 들어 있는 화학 물질을 쓰십시오.	-미세 먼지가 우리 건강에 어떤 영향을 미칠 수 있습니까? -미세 먼지가 심한 날 외출할 때는 어떻게 해야 합니까?	-미세 먼지가 발생하는 주요 원인은 무엇입니까? -미세 먼지를 줄이기 위해 우리가 할 수 있는 일은 무엇입니까?

Day 4 Role-play based on scenario

미세먼지 역할극(Role play)

- 그룹별로 상황 하나를 골라서 대화 만들고, 반 전체에 시연하기
- **Instruction: 미세먼지 조사한 내용 최소 3가지 포함 / 최소10 lines**

- 1) 상황1: 친구와 쇼핑을 하고 놀러 가기로 했는데, 한 친구가 미세먼지로 목이 많이 아픈 상황
- 2) 상황2: 여행 중, 미세먼지가 심할 것이라는 뉴스를 본 후 마스크를 사러가면서, 여행 준비 / 계획하기 / 변경하기
- 3) 상황3: 한국에서 교환학생을 하면서 초등학생 돌봄 아르바이트를 하고 있어요. 학교 숙제로 미세먼지에 대해 조사해 오라고 합니다. 숙제를 어떻게 도와 줄까요?

002 slide

Presentation

A: B씨, 뉴스 봤어?
B: 안 봤는데, 무슨 일 있어?
A: 응, 오늘 미세먼지가 심할 거라고 했어.
B: 그게 왜 중요해?
A: 미세먼지가 심각하면 숨 쉬기 힘들어. 폐하고 목이 아플거거든!
B: 일반 먼지와 미세먼지가 어떻게 다르냐?
A: 오래 보다 미세먼지가 더 작아가지고 위험해.
B: 예, 몰랐어. 그럼 마스크 사러 가자 마스크 쓰면 더 안전하대
A: 좋은 생각이다. 그림, 우리 오늘 외출하지 말고 그냥 호텔에서 쉬자.
B: 응, 내일 공기가 더 좋으면 외출 할 수 있어.

A: B, have you seen the news?

B: I haven't, what's wrong?

A: [The forecast] [s]aid there will be a lot of fine dust today.

B: How is that important?

A: When there is a lot of fine dust, it's hard to breathe. It won't be good for your lungs and your throat will be sore.

B: How is regular dust different from fine dust?

A: Since fine dust is smaller than sand, it's dangerous.

B: Oh, I didn't know. Then let's go get some masks. [I] [h]eard it's safer to wear a mask.

A: Good idea. Then, let's not go outside today and [get] some rest at a hotel room.

B: Yes, if the air quality is better tomorrow, we can go out.

A: B씨, 뉴스 봤어?

B: 안 봤는데, 무슨 일 있어?

A: 응, 오늘 미세먼지가 심할 거라고 했어.

B: 그거 왜 중요해?

A: 미세먼지가 심각하면 숨 쉬기 힘들어. 폐하고 목이 아플거거든!

B: 일반 먼지와 미세먼지가 어떻게 다르니?

A: 모래 보다 미세먼지가 더 작아가지고 위험해.

B: 아, 몰랐어. 그럼 마스크 사러 가자. 마스크 쓰면 더 안전하대.

A: 좋은 생각이다. 그럼, 우리 오늘 외출하지 말고 그냥 호텔에서 쉬자.

B: 응, 내일 공기가 더 좋으면 외출 할 수 있어.

Final Project

- Create a four-day, digital, eco-friendly travel brochure as a group using multiple modes and explaining how eco-friendly elements were applied
- Write a paragraph in Korean explaining what decision-making process has been taken to make an eco-friendly travel plan



Students' Sample (Group 4): Travel Plan

	Places to go	Activities	What to bring	The reasoning behind your eco-friendly travel plans
	여행 장소: 부산 Beach trip	할 일 / 하루 계획	준비물	
첫째 날	도착 다대포해수욕장 자갈치 시장 Airbnb	호텔에 투숙해요. 바닷가에 가요. 수용해요. 긴장을 풀어요. 시장에 먹어요.	수건, 친환경 자외선 차단제, 수영복 가져오세요. 재사용한 가방	Although the travelers will still be utilizing public transportation throughout the trip, it is still a more eco-friendly option as opposed to traveling solely by car. Once they arrive at the beach, they will be getting around on foot and playing in the water. Make sure to clean up trash and bring reusable water bottles -- no single-use plastic.
둘째 날	Busan Contemporary Art Museum (부산현대미술관) 을숙도 Bird Sanctuary	박물관에서 걸어다니고 구경해요. 사진을 찍어요.	재사용한 카메라, 토트백 운동화, 돈	A relatively short travel by subway to Eulsukdo. This day they can explore the island by going to the contemporary museum as well as the bird sanctuary all by foot.
셋째 날	광안리 해수욕장 광안대교	플라스틱 용기 말고 신선한 농산물을 사야 해요. 먹기 후에 퇴비 넣어요.	토트백, 돈	We changed this location from Haeundae Beach to make our travel package more eco-friendly. Haeundae Beach was much further from the other activities and we wanted to keep our locations closer together, as to lessen the amount of carbon emissions.

넷째 날	용두산 공원	구경해요 소풍을 가요. 비행기로 온다.	피크닉 바구니, 재사용한 도구, 피크닉 음식,, 재사용한 카메라, 돈, 운동화,	On our trip, we try to avoid buying from major food chains to help reduce the carbon emissions. As well, using reusable picnic utensils will reduce the amount of trash we produce.
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Using reusable water bottles:

일회용 컵 11g (3x per day) $(11 \times 3) \times 4 = 132\text{g}$ 줄였어요

Not watching TV:

TV 보기 2 시간 129g (1x per day) $(129 \times 4) = 516\text{g}$ 줄였어요

Using reusable utensils/masks:

Use of reusable utensils/재사용 마스크 19g (2x per day) $(19 \times 4) = 76\text{g}$ 줄였어요

Not eating as much meat:

고기 생산시 4390g (2x per day) $(4390 \times 2) \times 4 = 35120\text{g}$ 줄였어요.

Using only 1 toilet paper roll per person:

두루마리 화장지 1개 $(283) \times 4 = 1132\text{g}$

Only use computer each, 1 hour a day:

컴퓨터 1시간 $9000/100=90\text{g/hr}$, $(1 \times 4) \times 90 = 1440\text{g}$

Using electricity (light bulbs) 6 hr a night:

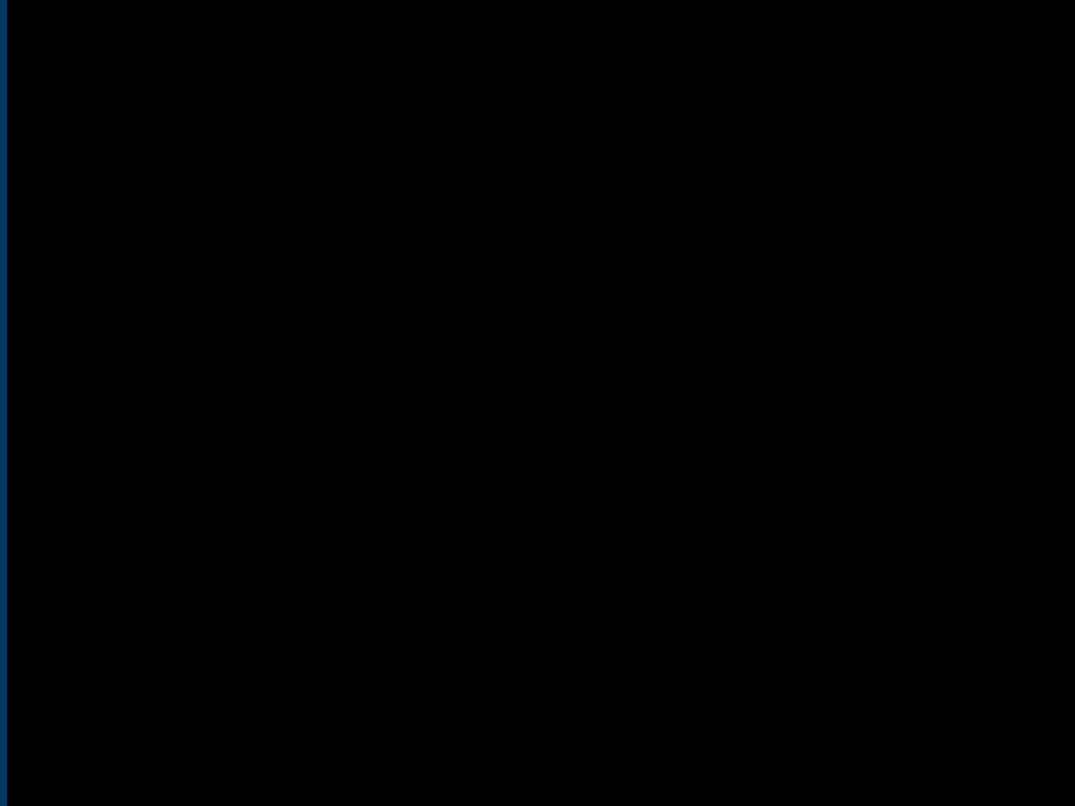
기존형광등 6시간 $(6 \times 4) \times 34 = 816\text{g}$

Amount of carbon
emission reduction
(student's calculation)

Students' Sample (Group 4): Travel Brochure



Students' Sample (Group 4): Presentation



Students' Sample (Group 4): SSI Reasoning

Group 4

우리 여행 곳으로 부산을 선택하기로 했어요. 한국에서 어디 어디에 갈 수 있는데 비행기로 가는 거 탄소 배출량 벌써 많이 있기 때문에 부산에서만 있을거예요. 그리고 부산은 서울보다 미세먼지가 적어서 숨쉬기가 편해요. 한 곳에서 있는데 근데 재미있는 기억들이 아직도 만들 수 있어요!

처음 왔을때 **AIRBNB**에 갈 거예요. 호텔보다 **AIRBNB** 더 싸고 친환경이에요. **AIRBNB**에서 사용하는 물과 전기 양을 다 제어 할 수 있어요. 그 반대로 호텔에서 매일 매일 빨래하고 전기를 많이 써요. 첫 날에 다대포 해수욕장을 갈 거예요. 거기서 바다에서 놀 수 있고 낚시도 할 수 있어요. 이 여행 동안 고기보다 생선을 더 많이 먹을게요. 왜냐하면 고기를 많이 사 먹으면 탄소 발자국 올라 갈 거예요. 낚시 할때 직접 물고기를 잡아 먹으면 탄소 배출량이 줄일 수 있어요. 이렇게 먹으면 매일 **~4390g** 탄소 줄었어요.

두번째 날에 지하철로 을숙도에 갈 거예요. 부산현대미술관에서 구경할거고 기념품 살 수 있어요. 물건을 사면 비닐봉지 말고 토트백에서 넣어요. 토트백 가져 가면 쓰레기 덜 있을거예요. 또, 사진 찍어 싶으면 일회용 카메라 가져 오지 말아요. 탄소 발자국 줄이기 위해 걸을 때가 많아요. 혹시 이 여행 동안 걸을 수 없을때, 대중교통을 이용할거예요.

셋째 날에 광안리 해수욕장을 갈 거예요. 사실은 처음에 해운대 해수욕장을 가기로 했는데 **AIRBNB**에서 너무 멀리 있어가지고 광안리 해수욕장을 선택했어요. 자동차보다 대중교통을 이용하는 게 더 좋은데 자주 이용하면 탄소 배출량이 아직도 올라 가기때문에 **AIRBNB**에서 가까운 장소를 선택했어요. 해운대 해수욕장은 더 유명한 것 같은데 광안리에서 할 일이 아직도 많아요. 여기서 쇼핑하고 음식을 사 먹을 수 있어요. 자전거를 타면 어시장에 갈 수 있어요. 혹시 음식 사 먹으면 재사용하는 식사 도구를 가져 가요.

마지막 날에 용두산에서 구경도하고 피크닉 할 거예요. 체인 레스토랑에서 음식 안 사 먹을게요. 왜냐하면 체인 레스토랑들이 탄소 많이 배출해요. 그래서 부산 현지 음식 사 먹을게요. 여행 마지막 날이라서 쉬어야지요! 우리가 매일 할 일이 많지 않았던 이유는 많은 관광지에 가면 탄소 배출량이 많아요. 탄소 발자국 줄이고 싶으면 더 간단하게 살아야 돼요. 이 여행은 시원하고 간단해요. 행복하고 재미있는 여행 가고 싶으면 많은 곳을 갈 필요 없어요.

여행 할 때 친환경 팁 많이 있어요. 손님들이 **TV** 안 볼게요. **TV** 안 보면 **~129g** 매일 탄소를 줄일 수 있어요. 그리고 일회용 제품 사용하지 말고 재사용하는 제품을 사용하세요! 이것을 하면 **~76g** 탄소를 줄일 수 있어요. 쓰레기 쉽게 많이 만들어가지고 재사용하는 제품은 (토트백, 마스크, 수저, 텀블러..) 아주 중요해요. 만약에 쓰레기 어차피 있으면 제대로 버려주세요. 길 거리에서 쓰레기 버리면 안 돼요.

Assessment (Feedback)

Assessment Elements		Description	Effective	Acceptable	Limited
Multimodal Aspects	Multiple Modes	-Did students use 2 or more meaning-making modes such as font, size, color, shape, or background to create pamphlets?			
	Appropriate Use of Multiple Modes in the Context	-Did students purposefully use each mode with a specific role in the pamphlets? -Did students use each mode relevant to specific topics?			
SSI Aspects	SSI Knowledge	-Did students demonstrate their SSI knowledge of eco-friendly travel?			
	Appropriate Use of SSI Knowledge	-Did students purposefully use their SSI knowledge of eco-friendly travel in the digital travel pamphlet relevant to specific topics?			
Language Aspects	Task / Function of the pamphlet	-Did students appropriately use vocabulary and sentence structures considering genre specific attributes of the pamphlet?			
	Language Accuracy	-Did students use vocabulary and sentence structures accurately and effectively to deliver the message without errors or mistakes such as misspellings, grammatical errors, and misuse of words?			
Overall Organization		-Did students include all the elements with enough information and organize them coherently and effectively?			



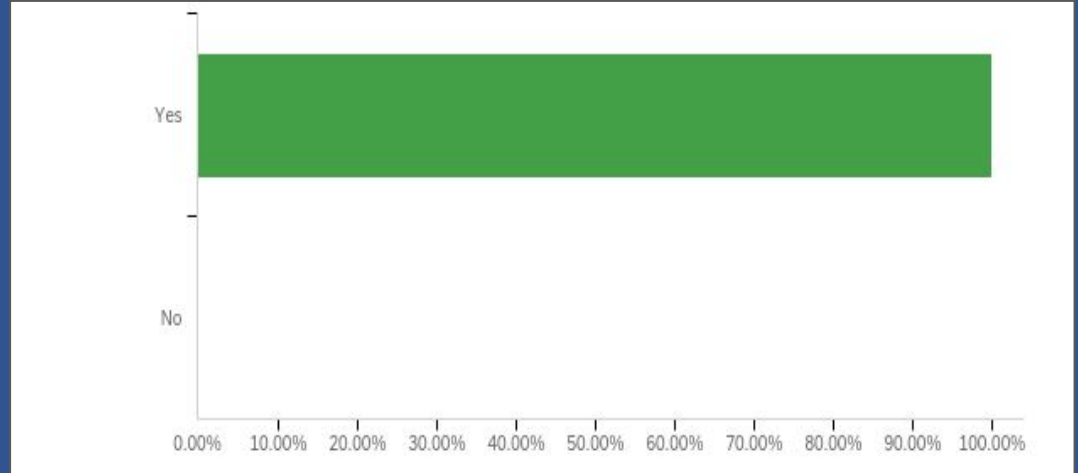
padlet

1. How would you implement an SSI project (or activities) in your curriculum?
2. What could be the possible challenges?



Guided Use of Machine Translator G.U.M.T.

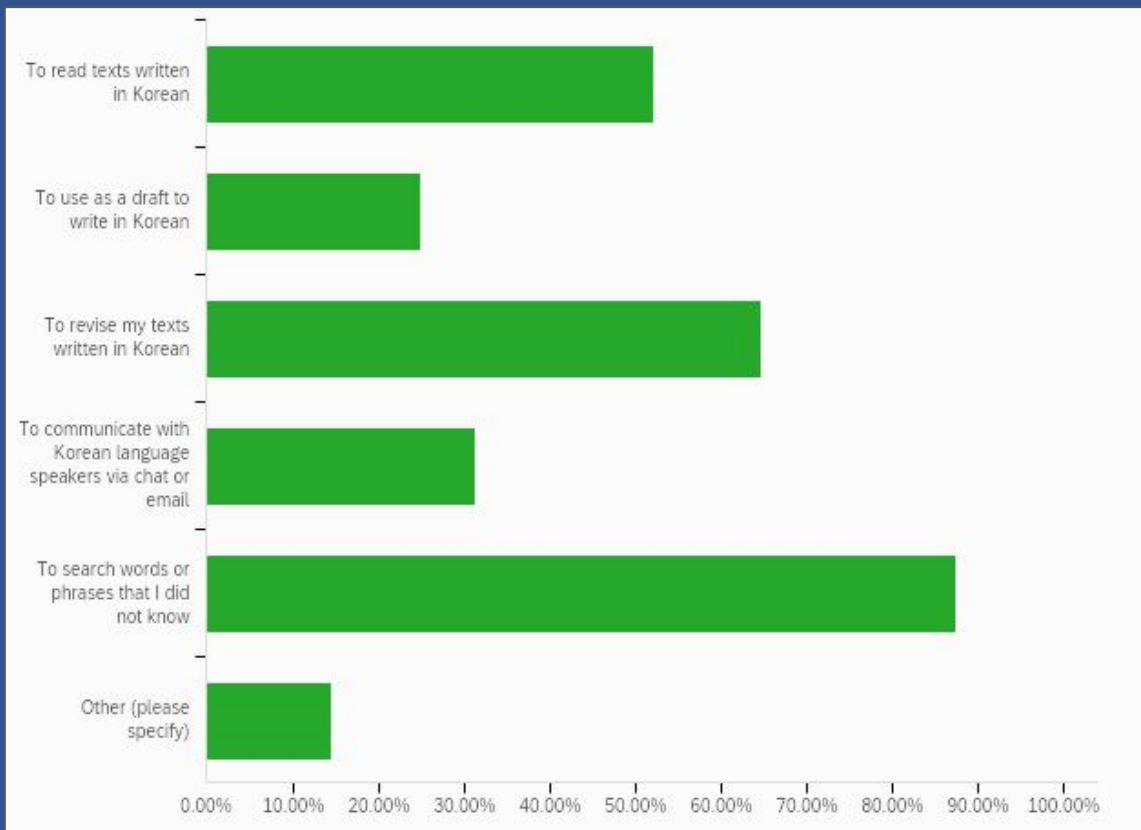
Students' Use of Machine Translator (MT)



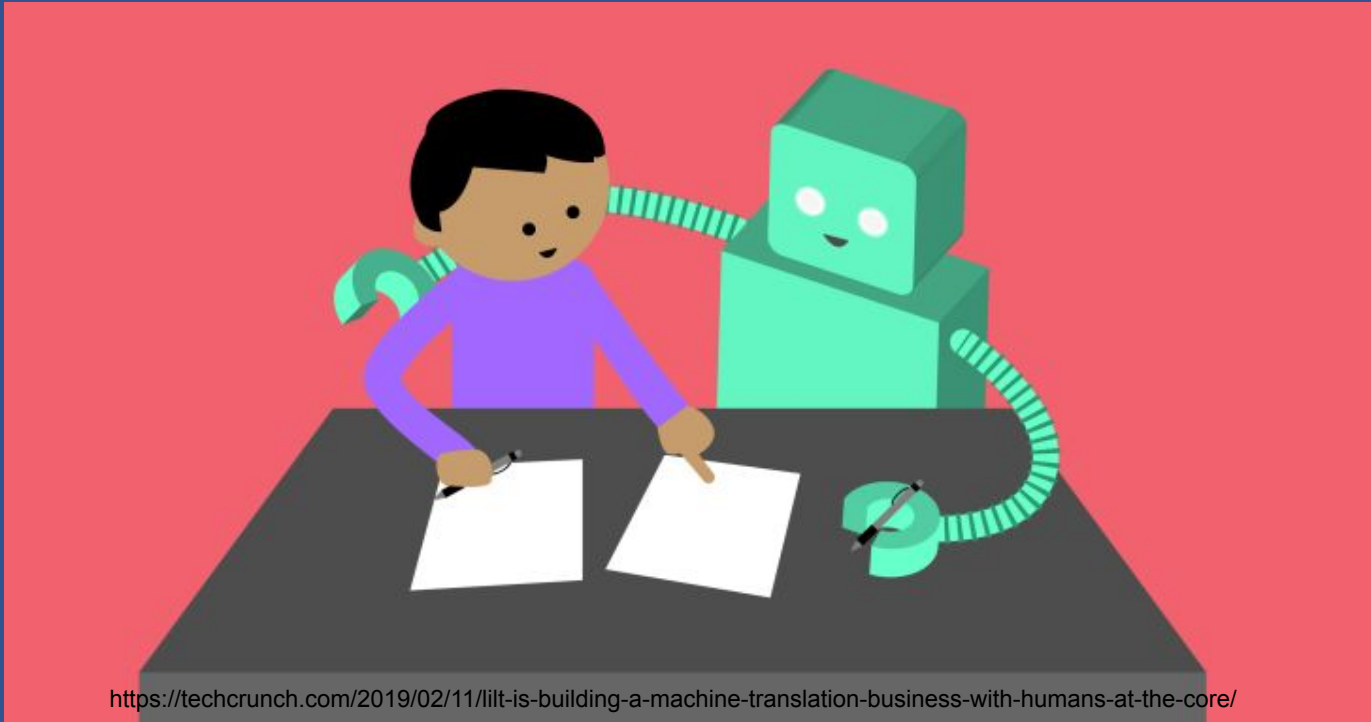
Purposes of Students' Machine Translator (MT) Use

Ranks

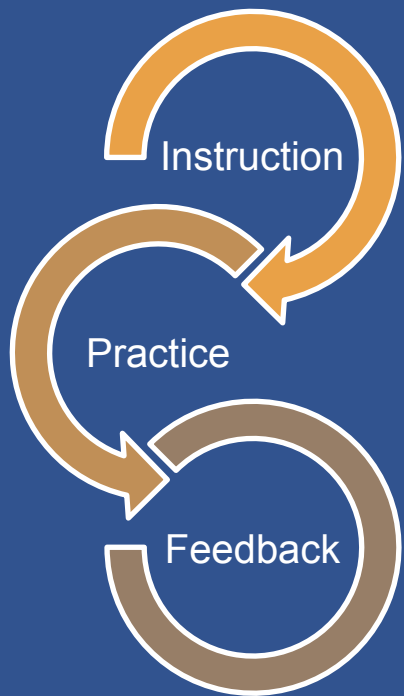
1. To search words or phrases that I did not know
2. To revise my texts written in Korean
3. To read texts written in Korean
4. To communicate with Korean language speakers via chat or email
5. To use as a draft to write in Korean
6. Others



Guided Use of Machine Translator (GUMT)



GUMT Design



Instructional Session (50 min)

[Goal]

To develop better awareness on how MT can be an effective supplemental tool for FL learning

- Review of MT's strengths and weaknesses
- Pragmatic appropriateness evaluation of MT outputs

Instructional Session

Strengths and limitations

- Different speech styles
- Levels of politeness
- Genre

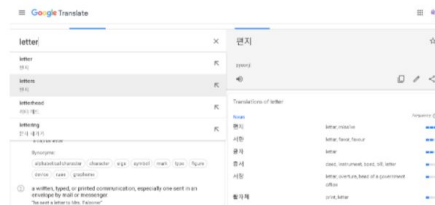
Built-in features

- Honorifics function
- A word's part of speech display
- Direct link to online dictionaries



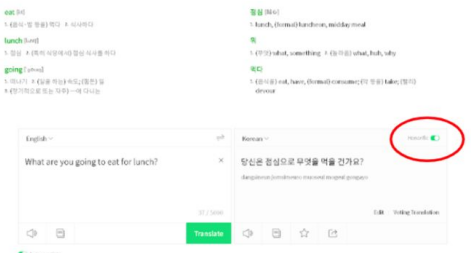
deferential style translated results (E-K)

- frequency
- no honorific info
- additional possible translations
- when highlights, GT provides more info about the words
- Case sensitive: different sentence ending



Informal context - polite ending (E-K)

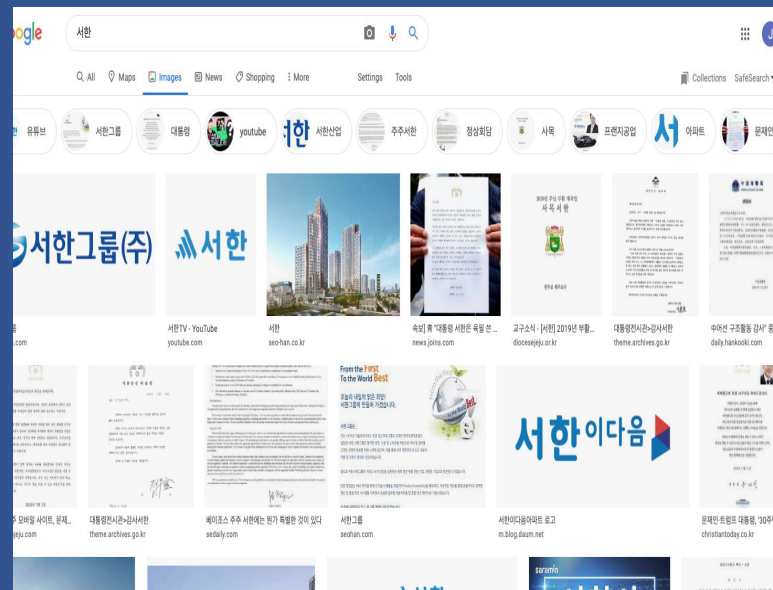
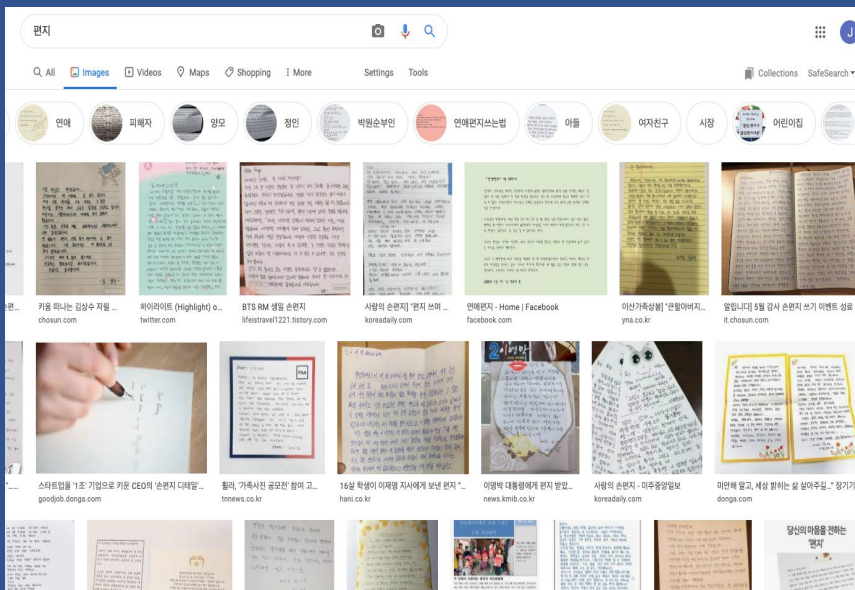
- More casual
- 'Honorific' tab - need modification
- Provide word definition
- Provide dictionary source
- Linked to Naver dictionary



Instructional Session

Google Images and News as supplementary corpus data to make sociopragmatic judgment

- Example: letter (Eng) > Pyunji / Suhhan (Kor)

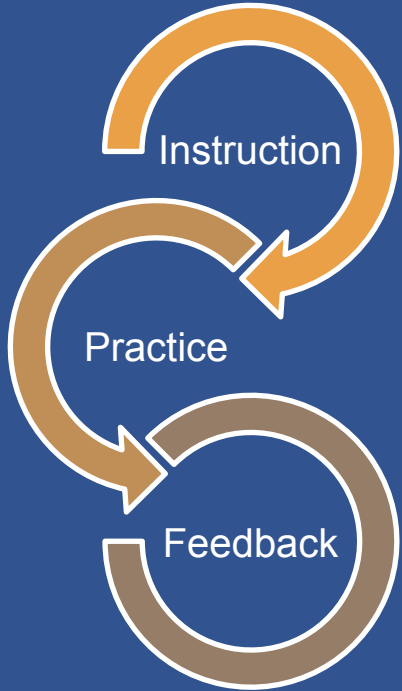


Instructional Session

Pragmatic and grammar evaluation exercises,
which encouraged to think about the contexts of the given samples

- Formal/informal settings
- Relationship between the speaker (writer) and listener (reader)
- Purpose of the conversation

GUMT Design



Practice (5 writing assignments)

[Goal]

To confirm the MT outputs and visualize their decision-making process and reflect on their MT use critically

- Scaffolded practice
with instructor / with peers / on their own

Practice Session

Step 1. Write your first draft in Korean on your own. You may use the glossary at the end of your textbook and/or dictionaries.

Step 2. Write what you drafted in Step 1 in English as well.

Step 3. Use a machine translator (name of translator: Google translate, Naver Papago) and edit your writing in Step 1. Please apply the guidelines you learned in the class.

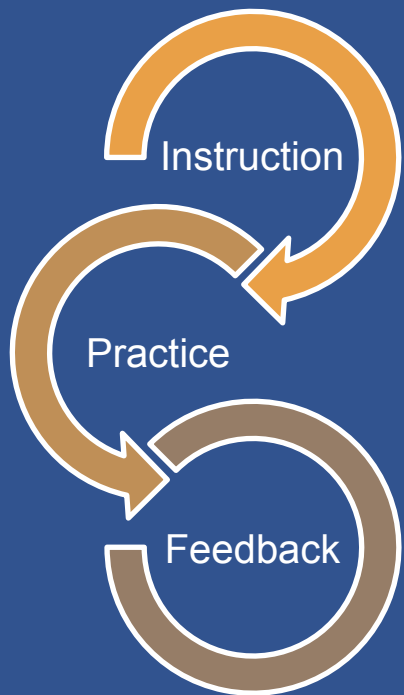
*Purpose: 1. Checking spelling, 2. Checking grammar, 3. Clarifying meanings, 4. Checking honorific forms, 5. Finding better expressions, 6. Other: please specify

Words /Phrases	Purpose* [Please choose one from the above]	Translator 1st run	Choice after Image search	Choice after News search	Final choice Of Korean expressions

Step 4. Please compare your own sentences and translated sentences and share your thoughts and experience using the translator to complete this writing assignment.

1. Which translated part was most similar to your own Korean writing?
2. Which translated part was most different from your own Korean writing? Was the translated sentence contextually awkward or appropriate? Why do you think so?
3. In what ways did image or news searches help you with your final draft?

GUMT Design



Feedback (after each writing assignment)

Written feedback

- Focus on how the students can use GUMT more effectively
- Grammar and pragmatic evaluation
- Highlighted focus sentence that still needed corrections

In-class feedback review session

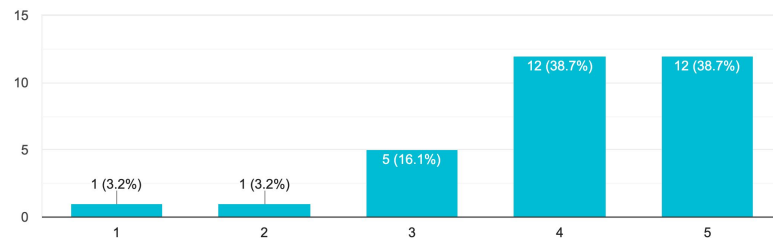
- Compared, refined, and revised the highlighted sentences

After GUMT

- GUMT helped the students to use MT effectively
- Developing strategies for using MT and other online resources
- Awareness of uncertainty and limitations of MT as lower-proficiency-level students

Q16: Did GUMT help you to use MT more effectively?

31 responses



At first I looked up 드려 [give - humble form], the translator and images were not accurate at all. I think word is not conjugated properly or because it lacked content. After putting the entire phrase, the results started to be more accurate to what the phrase should be. (Student 1, reflection)

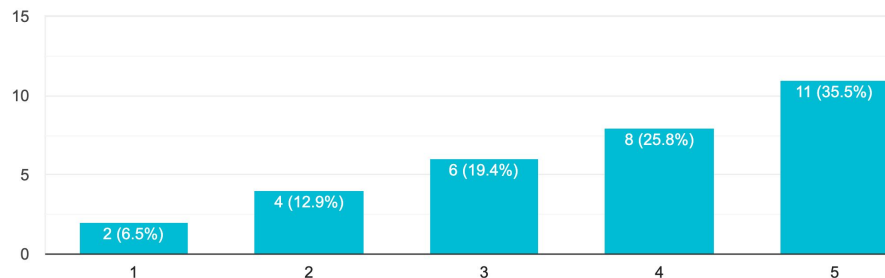
I find that the translator is only as useful as much grammar or vocabulary you know, so the less information you know, the less useful the translator will be and you won't be able to infer as much information from trying to mess around with the translator (Student 8, reflection)

After GUMT

- GUMT helped students to see the language more critically and analytically and learned more pragmatically appropriate expressions.

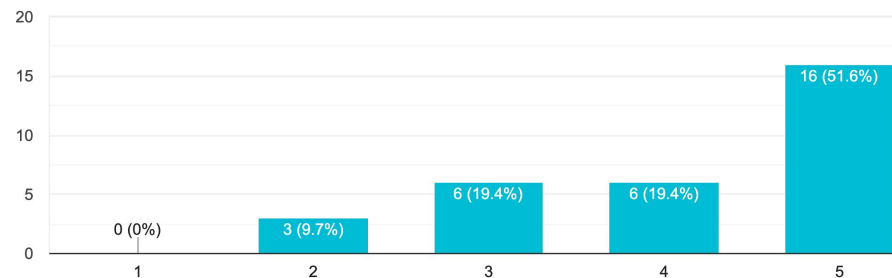
Q13: Did GUMT help you to critically look into how the Korean language works as a language?

31 responses



Q14: Did GUMT help you with finding context-appropriate vocab/expressions?

31 responses



After GUMT

- MT as automated feedback resource

Sometimes a word I would use would have multiple meanings, and I needed to make sure that the word I was using was contextually correct” (Student 5, post-survey)

With some of the verbs I know. For example, I didn’t know the meaning of ~(으)ㄴ [when], so I put 먹으 [when] into the translator and it said “when you eat,” so I figured out that ~(으)ㄴ means when you do + a verb. (Student 8, reflection)

- Valued instructor feedback and feedback sessions

The written feedback has helped me verify that I am approaching the use of (and the drawbacks inherent in using) machine translators correctly. It was also useful to verify that some of the frustration I experienced trying to get the translated phrases to match my intended meaning was expected, and not due to me using the machine translator improperly. (Student 7, post-survey)

After GUMT

- Fostering confidence in Korean writing

“... able to gain more confidence in what I have written because the translator could understand me” (Student 15, reflection)

“... surprisingly! I think I am starting to get better at expressing myself correctly in writing! This was very encouraging. 😊” (Student 10, reflection)

- Motivated students to study

I mix up my particle usage a lot, and instead of saying I have to get a new book, I said that Barnes & Noble had to get new books, according to both of my translators. It wasn't appropriate because I had used incorrect particles—I need to go back and review! (Student 10, reflection)

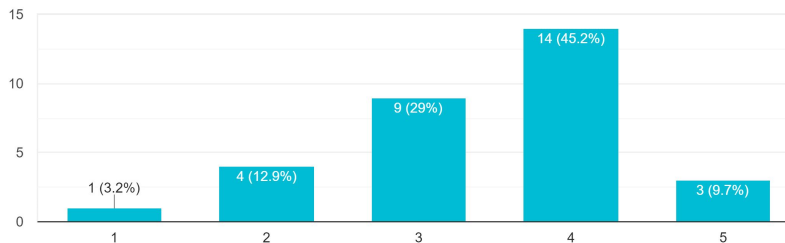
After GUMT

- Promoting fluency in Korean writing

“It made me think outside the box and be a bit more creative.”

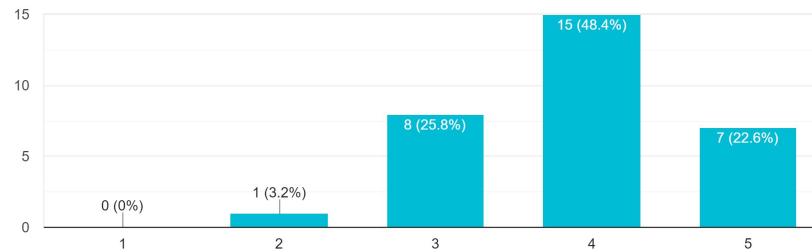
Q10: Did GUMT help you to write more in length?

31 responses



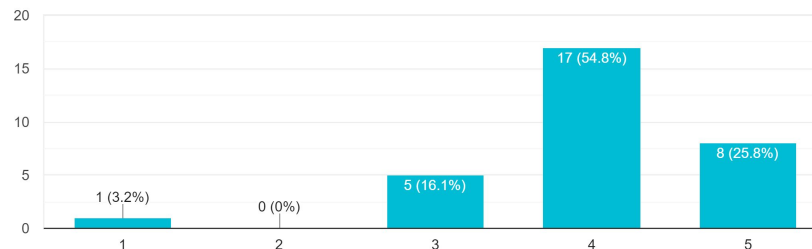
Q11: Did GUMT help you to be more creative when you were writing?

31 responses



Q12: Did GUMT help you to express your thoughts more freely in Korean?

31 responses



After GUMT

The work was a little tedious, especially as we moved on with the semester and the writing got better. It instilled good habits and skepticism of the translator though, which is a benefit to me! (Student 17, post-survey)

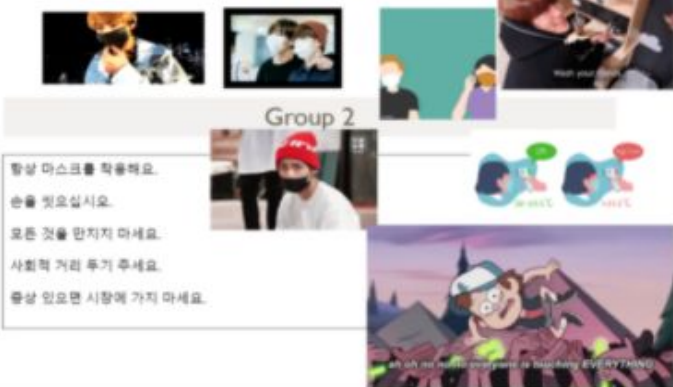
This [GUMT] not only refined my translator usage and my writing, but made it more efficient than it would have been otherwise. By the final writing assignment, I knew what to look for in the translator right away, and how I could modify my sentences to make them sound better. (Student 3, post-survey)

Q1: What is your stance on the students' use of MT?

Q2: How you would create activities to guide students?

Instructor Manual Guide

		Day 3 (Topic) How To Respond to COVID-19: 1. Social Distancing and Stay-at-home	
SLO		Students will be able to: 1. Report interesting social distancing practices in Korean 2. Interpret the video regarding social distancing and stay-at-home 3. List important social distancing practices in Korean	
Opening Entire class	<p>1. The instructor shares the interesting social distancing pictures and sentences that the students have posted and discusses them together.</p> <p>Student Sample)</p>  <p>2. Ask students to summarize the articles they have read as an assignment and share their thoughts on them. The instructor will summarize the main points of the articles and connect the main ideas to what they will learn today.</p> <p>Articles)</p> <ul style="list-style-type: none"> - Pandemic Fatigue: I-Team: Mapping 70,000 Social Distancing and Mask Complaints Made Across NYC https://www.nbcnewyork.com/news/coronavirus/i-team-mapping-70000-social-distancing- 	10 min	

<p>[Activity 1]</p> <p>Breakout rooms</p>	<p>Making Safe Shopping Guidelines (as a group)</p> <p>Instruction</p> <ul style="list-style-type: none"> Make your Safe COVID 19 Shopping Guidelines in Korean. <ul style="list-style-type: none"> Add a title and short description as in the sample guidelines. Add appropriate visual elements. Include at least 3 guidelines. You may choose some guidelines here and see other references. Don't forget that you have to explain why your guidelines are sensible (in English) when you share your guidelines with the class. <p>(Extra resources for the students: Other guideline examples)</p> <ol style="list-style-type: none"> Here are some tips to keep safe when grocery shopping during Covid-19: https://www.forbes.com/sites/tjmccue/2020/04/21/how-to-keep-safe-in-the-grocery-store-during-covid-19/?sh=947ac98614f5 7 tips for safe grocery shopping during Covid-19: https://www.riversideonline.com/patients-and-visitors/healthy-you-blog/wellness-during-covid-19/7-tips-for-safe-grocery-shopping-during-covid-19 <p>Student samples)</p> 	<p>25 min</p>
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Entire class

In the assignment for the next class, students will be asked to reflect on their previous essay (Day 6 worksheet) with the lens of the 4 SSI elements. The instructor will briefly explain what the assignment will be about by showing the Worksheet Day 6 Scenario-Shopping [Review] (You can download the worksheet).

Day 6 Worksheet

Day 6 worksheet will be graded. So make sure to upload the answered worksheet on D2L. (Assignment after Day 6 class)

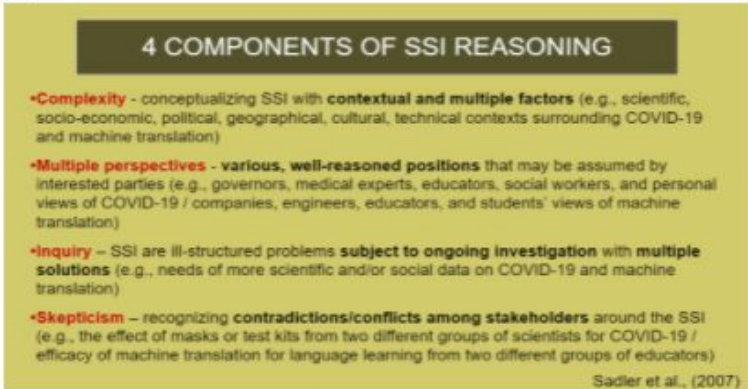
Mass Infection: Stores At Risk

Reflect on your essay with the lens of the following SSI elements.

- 1) Which part reflects the *inherent complexity* of an issue?
- 2) Which part reflects *multiple perspectives*?
- 3) Which part reflects the idea that issues are subject to ongoing *inquiry*?
- 4) Which part reflects your *skepticism* on possibly biased information?

	Excerpts from your essay	Reflections, Questions, & Improvements
1) Complexity: Conceptualizing SSI with contextual and multiple factors (e.g., scientific, socio-economic, political, geographical, cultural context surrounding Covid-19 or machine translation)		Please write why you think these excerpts demonstrate complexity. Please also write if you have any ideas you want to add more to consider complexity better.
2) Multiple		Please write why you think these excerpts demonstrate multiple perspectives. Please also write if you have any ideas you want

8 min

		Day 6 (Topic) Significant Practices for Decision-making in the Context of SSI	
SLO		<p>Students will engage in the following significant practices under the multiliteracies framework.</p> <ol style="list-style-type: none"> 1) Situated practice: experiencing the known (reflections) and the new 2) Critical framing: analyzing functionally and critically 3) Conceptualization via overt instruction: naming and theorizing <p>Students will engage in the following significant practices under a SSI framework.</p> <ol style="list-style-type: none"> 1) Engaging in higher-order practices (argumentation, reasoning, decision-making) 2) Confronting scientific ideas and theories related to the issue. 3) Collecting and/or analyzing scientific data related to the issue. 4) Negotiating the social dimension of the issue. 	
	Opening	[Significant Practice] Relating the scientific facts with social behaviors and decision-making Theme: Shopping	2 min
	Revisit Entire class	<p>The instructor will discuss the definition of SSI and the 4 components of SSI reasoning previously discussed on day 1 with the students.</p> <p>SSI lecture PPT</p>  <p>4 COMPONENTS OF SSI REASONING</p> <ul style="list-style-type: none"> •Complexity - conceptualizing SSI with contextual and multiple factors (e.g., scientific, socio-economic, political, geographical, cultural, technical contexts surrounding COVID-19 and machine translation) •Multiple perspectives - various, well-reasoned positions that may be assumed by interested parties (e.g., governors, medical experts, educators, social workers, and personal views of COVID-19 / companies, engineers, educators, and students' views of machine translation) •Inquiry – SSI are ill-structured problems subject to ongoing investigation with multiple solutions (e.g., needs of more scientific and/or social data on COVID-19 and machine translation) •Skepticism – recognizing contradictions/conflicts among stakeholders around the SSI (e.g., the effect of masks or test kits from two different groups of scientists for COVID-19 / efficacy of machine translation for language learning from two different groups of educators) <p>Sadler et al., (2007)</p>	10 min



SSI
Discourse
Archiving

^ Home

Traditional Science

Biohazard;
Biotechnology

Space

Technologies, New &
Old

Environment; Energy

Disasters; Apocalypse

Marine Resources;
Deep-sea

Time

Team

Hop
inspire you



MOON

사이드 달을 세운 후 전지각

MOON

MOON

MOON

Archiving the Contemporary Discourses of Socioscientific Issues in Korea

Socioscientific Discourses in Korean Media

- Movies

- TV Shows

- Webtoons

- Music

- ✓ How are people aware of and interpret scientific issues in their lives?
- ✓ How are socioscientific issues described/presented in narratives?
- ✓ How is socioscientific knowledge manifested in daily life?

- Word of mouth, Written texts, Images, Memes, Blogs, Web forums

Socioscientific Discourses in Korean Media

- Movies

- TV Shows

- Webtoons

- Music



문유 -조석

The earth has fallen. I was left
alone on the moon.

No. 1 (sung by BoA)

“As I am looking at your face in the
dark
without realizing tears are flowing
soundlessly you follow me and
shine on me
finally were you caring for me
because you knew me?
you, who gave my first love shine
you also saw my break up”

...

<https://lyricstranslate.com/en/no1-no1.html>

Theme-based Categories



Oriental Science

Collections of all kinds of oriental science such as oriental medicine, feng-shui, face-reading, astronomy, and so on



Biohazard; Pandemic; Biotechnology

Collections of biotechnology and contagion related products



Space

Collections of all narratives related to space



Technologies

Collections of narratives regarding technologies such as AI, hologram, weapons, and so on.



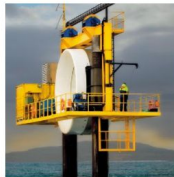
Environment; Energy

Collections of environmental and energy issues



Disasters; Apocalypse

Collections of all kinds of disasters both natural and man-made



Marine Resources; Deep-sea

Collections of the narratives related to marine resources and oceans



Time

Collections of time related issues including time travels, time slips, eternal lives, and so on

Traditional Science

Biohazard; Biotechnology

Space

Technologies, New & Old

Environment; Energy

Disasters; Apocalypse

**Marine Resources;
Deep-sea**

Time



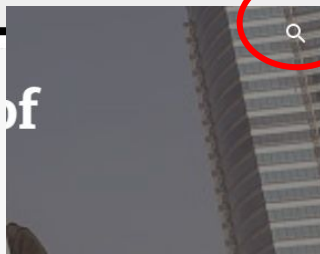
킹덤 Kingdom (2019)

#kdrama #zombie #orientalscience



살아있다 Alive (2020)

#koreanmovie #zombie #socialn



Features

1. Linked contents
2. Hashtags & Keyword search
3. Brief introduction
4. Translated lyrics (partial)

Webtoons



중독 연구소 (by 김택기)

Kim Tae-rim, a boy who grew up in an addicted family, looks at his problems as he joins an addiction hospital.

Our all addiction story, what are you addicted to?



Songs in 90's (from the concert)



내일은 늦으리 (by 신해철)

- Lyrics (the first part, translated)

Even the goldfish in the fishbowl.

He grumbled, saying he couldn't breathe.

There are stars in the sky.

In a murky city that we can't talk about.

The children's clear eyes.

Do you know what you want?

Because of someone who's greedy.

A world that's all clouded out.

The dusty night sky.



더 늦기 전에 2050 (by 하현우)

- Lyrics (the first part, translated)

Come to think of it, the tough years.

I'm here with my breath in front of me.

There's still a long way to go.

Now I'm looking back on the path I've taken here.

The old stream I used to run around in my childhood,

I don't want to fill it with gray foam, and it flows.

In the thick smoke of factory chimneys,

Tomorrow's dream is scattered into the cloudy sky.

The Archive of the Contemporary Discourses of Socio-Scientific Issues in Korea

The narratives of how scientific issues are aware of and interpreted in a community

The ways in which socioscientific issues are described in narratives

The observations of socioscientific knowledge that are manifested in daily life

*Hopefully, the archive will be able to inform about how SSIs are integrated and reinterpreted in the Korean society and
inspire you about classroom applications of SSI discourses through the growing archive of the contemporary narratives in daily lives.*

SSI Archive Home:

<https://sites.google.com/view/ssi-discourse-archive>

Thank you!

Q and A