

Promoting students' higher order thinking through discussion and analyses of discussion results via online platform

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Objectives

- **In this project, we are going to use the existing Moodle system**
 - **to engage students from diverse background in discussion via Moodle, by identifying and posting the latest science news or issues, and encourage students to join the discussion and share their views through the electronic platform, overcoming the cultural barrier in classroom.**
 - **to engage students in reviewing and summarizing peers' views and opinions towards specific issues, analyzing the results and presenting the summary of the results in-class to stimulate further discussion.**

Expected outcome

- **Engagement of students from diverse background in discussion**
- **Enhanced student subject knowledge through discussion and analyses of discussion results**
- **Models of online discussion forum via Moodle which can be adopted for other courses**
- **Sharing of experiences with colleagues**

Period	Plan/Activity
Nov 15 – Jan 16	• Collection of information on the latest science news and issues
Jan 16	• Selection of information to be posted on Moodle • Design of questions to examine participants' preliminary knowledge • Design of discussion questions
Jan 16	• Online discussions are launched
Feb 16	• Analyses of the discussion results and the presentation of these analyses in-class • Completion of a self-reflective report on the effectiveness of the Moodle discussion

Implementation

- **Two classes:**
 - **SCI 2008 Energy and Physical Phenomena**
 - **SES 3035 Environment and Community Engagement: Theory and Practice**
- **Launched three articles for each class**
- **Each article has a question to think and discuss**
- **Students are encouraged to comment, discuss and start another problem based on the article**

Implementation

- **We recruited four student helpers**
- **Every week they search appropriate articles (related to physics or environmental issues)**
- **We select one article from each domain and put on Moodle every Monday**
- **Set up a discussion forum for each article and send email to encourage them to discuss**
- **Period: 11 Jan – 22 Feb**
- **Total 3 articles for discussion from each domain**
- **Discussion was still going on until April**

Frequencies for the discussions

SES 3035

Discussion	Started by		Replies	Last post
The first article		Man Ho CHAN	33	YIU NGAR YAU Tue, 26 Apr 2016, 11:24 AM
Discussion	Started by		Replies	Last post
Second article		Man Ho CHAN	21	QIAO LEI Mon, 11 Apr 2016, 12:34 PM
Discussion	Started by		Replies	Last post
Discussion for article 3		Man Ho CHAN	14	CHEN SIXIAN Thu, 28 Apr 2016, 1:25 PM

SCI 2008

Discussion	Started by		Replies	Last post
Article 3		Man Ho CHAN	5	MAK HO MAN Fri, 1 Apr 2016, 10:42 PM
Article 2		Man Ho CHAN	6	MAK HO MAN Fri, 1 Apr 2016, 9:45 PM
Article 1		Man Ho CHAN	5	LEE YU KI Thu, 31 Mar 2016, 1:16 PM



Re: Article 2

by [REDACTED] - Friday, 1 April 2016, 9:45 PM

However, i think T-way should be tested before manipulated in medical treatment, so as to ensure it is safe for human beings.

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Re: Article 2

by [REDACTED] - Friday, 1 April 2016, 9:37 PM

Every new technique, devices, or instruments are required time to modify, optimize its function and drawbacks. T-way is one of the example. In my opinion, T-way can replace X-ray in the future in different areas (medical area, security usage or military protection etc.)

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Re: Article 2

by [REDACTED] - Wednesday, 30 March 2016, 2:47 PM

T-ray can be used in food production process. In every steps of food production, if the food is being checked by T-ray to see if there are any harmful or unusual substances inside the food or inside the package of the food, it will be more safe to eat. Also, in the future, if everyone can have a T-ray detector at home, they can use it to look through the organs inside their body to see if there is something wrong.

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Re: Article 2

by [REDACTED] - Friday, 29 January 2016, 10:12 AM

T-ray sounds very useful and harmless when compare to X-ray, as it can penetrate clothing, paper and certain materials without emitting powerful radiation. Of course it can be broadly applied in medical and military area by scanning through object. However, it is a relative new technology which hasn't be well-developed. Stated in the article, the size of sensor and power supply to generate T-ray are the important issues to concern. in fact, even it is not that radioactive as X-ray, the potential risk toward human still be unknown, different researches and experiment need to be conduct before widely apply this new tech into our life. Everything has both pros and cons, we cannot just focus on the pleasant thing and ignore the risk.

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In my point of view, I think that the issue of Climate Change is not only the problem in Western countries anymore; it has become an inevitable issue in Hong Kong gradually. We understand that climate change has been creeping into our daily lives nowadays. According to the Hong Kong Observatory, the annual mean temperature of Hong Kong has been risen in average of 0.12°C from 1885 to 2009 due to the serious climate change problem (Eccteachingkit, n.d.). After I read the first article which talking about the world governments has now finalized a global agreement in Paris with regard to a foundation for long-term efforts so as to tackle climate change issue, I agree with what Tasneem Essop said, the head of WWF delegation to the UN climate talks. As Tasneem Essop said, it is better to make efforts to urge governments, cities, business sectors and also citizens to make cuts on emissions. According to Eccteachingkit (n.d.), it may increase production in order to meet the needs of and enjoy pleasurable and convenient daily lives. As a result, we have produced a lot of carbon dioxide and greenhouse gases which intensified global warming and also led to the rise in global temperature finally. For example, we could find out that the annual emission per capita of greenhouse gases was 6 tonnes of carbon dioxide equivalent (which is a standard unit for measuring the carbon footprint) in 2008; the total annual emission of carbon dioxide equivalent increased from 33.3 to 43.4 million tonnes during the period between 1990 and 2008 (Environment Bureau, 2010). Therefore, controlling the emission of carbon is necessary for us to deal with climate change problem.

Here is some of my suggestion and feasible solution(s) to Hong Kong Government to tackle with the problem of high carbon emission in Hong Kong:

First, Government should pay more focus on the C40 Cities Climate Leadership Group (C40). Since Hong Kong is a member of this group which having a partnership of other large cities in order to reducing carbon emissions with some concrete actions. By working together and sharing ideas and experiences, cities could contribute significantly to tackle the problem of climate change. I believe that the C40 is one of the useful platform for collaboration among different cities as a complement for international agreements. If Hong Kong Government can do more promote on this group, we can know more methods suggested by other countries and follow the example from them.

Second, Government should urge people viewpoints on combating climate change. As a Special Administrative Region of China, Hong Kong is not independent in obligations under the international regime of sovereign-based United Nations cooperation to climate change matter. However, as a global citizen, our actions on mitigation and adaptation strategies would be important to cope with climate change. Government should set some targets for people to meet and encourage them on participating those actions on reducing carbon emission in Hong Kong. As we all know, citizen participation is important in one country to improve the situation at present time.

Third, Government can act as the initial actor to other sectors like business and non-governmental organization to make efforts on educating them regarding the issue of climate change. Since Hong Kong is economic-based metropolis and global financial center, we can incorporate and integrate the low-carbon notion with economic development, their business and organizational development plans, try to do participate and contributing in combating climate change such as low-carbon lifestyle and working environment.

Eccteachingkit. (n.d.). *Carbon Emission: Climate Change Strategies and Measures*. Retrieved from http://www.eccteachingkit.org.hk/upload/download/carbon_emissions.pdf

Environment Bureau. (2010): *Hong Kong's Climate Change Strategy and Action Agenda Consultation Document*. Retrieved from http://www.epd.gov.hk/epd/sites/default/files/epd/english/climate_change/files/Climate_Change_Booklet_E.pdf

For the course SCI 2008

- Totally 10 comments posted by students in 3 articles;
- Each comment contained around 100 words;
- The average percentage of number of participants is 27.8%.

Article	No. of participants	Total no. of students in class	No. of participants (%)
1	4	12	33.3
2	3	12	25.0
3	3	12	25.0
		average	27.8%

For the course SES 3035

- Totally 54 comments posted by students in 3 articles;
- Each comment contained around 300 words;
- The average percentage of number of participants is 30%.

Article	No. of participants	Total no. of students in class	No. of participants (%)
1	31	60	51.67
2	17	60	28.33
3	6	60	10.00
		average	30%

Major results

- According to the results, the project had successfully engaged students with diverse background in discussion via Moodle and encouraged them to join the discussion and share their views.
- Moodle was proved to be a good online platform for students' discussion.
- The students' comments reflected that they could summarize and review peers' opinions and add-on their own views.
- The content and the depth of the comments reflected that students' subject knowledge had been enhanced. Some students can demonstrate high-order thinking skills in their comments.

Major results

- Student helpers learned a lot from the activities
- They learned from the articles and how to formulate questions
- They participated actively in this learning activities
- Overall, the project is successful

Thank you

Q & A