



香港教育大學

The Education University
of Hong Kong

Supporting students' discipline-specific summary writing skills through an on-line learning platform

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語言學及現代語言系

LINGUISTICS AND
MODERN LANGUAGE STUDIES

Outline

1. Rationales
2. Constructing the learning platform
3. Students' learning activities on the platform
4. Students' evaluation and feedback



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Purposes of the project

- To enhance EMI students' overall summary writing skills through discipline-specific summary writing practices.
 - (i) To establish two discipline-based text banks with guided summary writing tasks (in the discipline of HPE and MIT).
 - (ii) To construct an online English summary writing platform that can provide automatic scores and feedback.
 - (iii) To embed the above mentioned English summary writing platform into the Moodle system at EdUHK (The Education University of Hong Kong).



Rationales

The needs of EdUHK (The Education University of Hong Kong) students as a result of EMI

- Needs for developing discipline-specific language learning and writing activities.
- Needs for summary writing skills for final year students working on their Honours project.
- Needs for a platform that allows self-study.



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Needs for discipline-specific language learning and summary writing skills at EdUHK



Constructing discipline-specific text banks and summary writing tasks

Constructing an online English summary writing platform (ESWP)



Collecting expert summaries



Training the ESWP using expert summaries



Students submit their summaries to the ESWP.



Automatic generated feedback and scores



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Sample summary writing tasks

Summarizing a general mathematic article

Read page 2 and page 3 of the article - 'Who said the mathematics will be boring' and summarize in 200 words the approach to teach science and math as suggested by the author.

Summarizing mathematic literature

Read the following article and summarize possible approaches to deal with controversies found in measuring perimeter in 150 words.

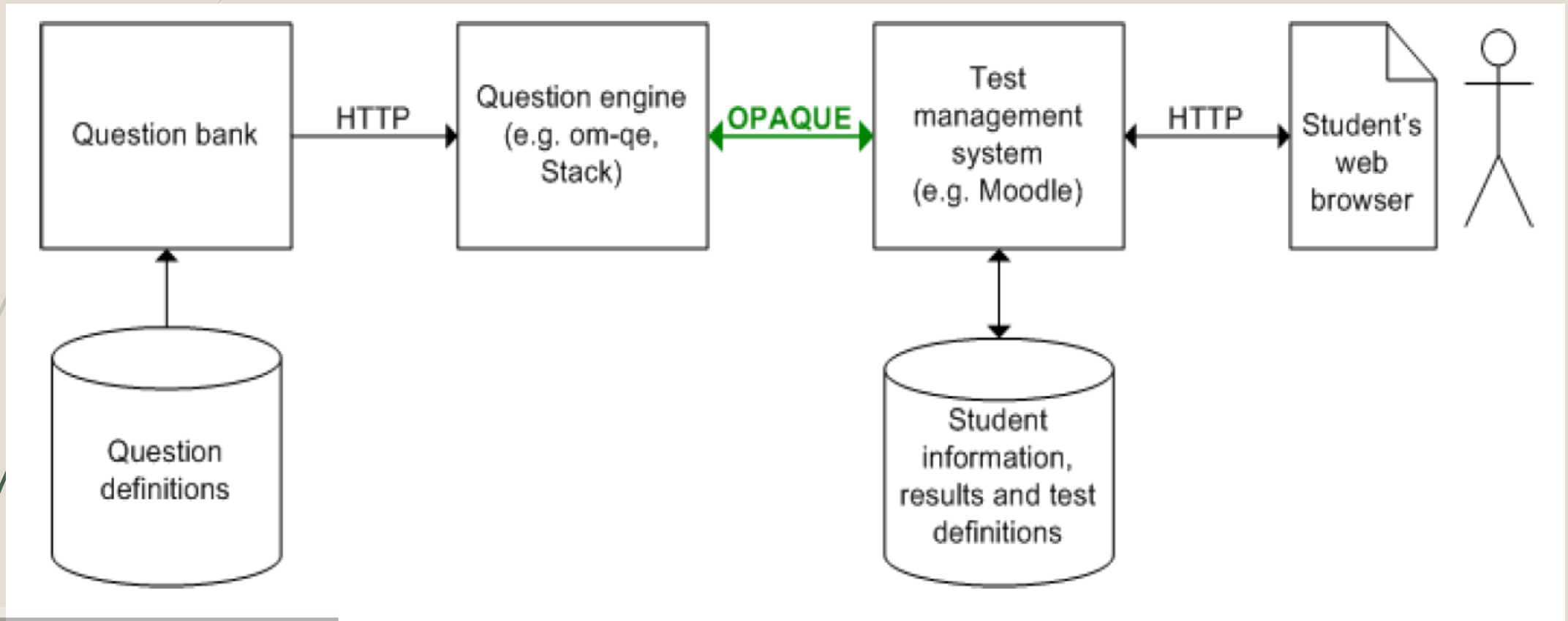
Danielson, C. (2005). Perimeter in the curriculum. *For the Learning of Mathematics* 25(1). 30-33.



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Constructing an on-line summary writing platform



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Summary writing workshops and on-line summary writing



Summary Writing Workshops for Mathematics Students

Writing a summary is an important skill that students will use throughout their academic careers. In this workshop, students will:

- develop a general understanding of writing an effective summary;
- have hand-on experience in writing summaries in the discipline of mathematics;
- use an on-line writing platform to self-evaluate their own summaries.

Such experience is considered to be particularly valuable for mathematics students who are going to work on their honors project reports

Topic: Writing a summary in the discipline of mathematics

I just need the main ideas



How to summarise?

Session 1: Jan 31st, 2018 (Wednesday)
9:30 – 12:30 B1-LP-01

Session 2: Feb 6th, 2018 (Tuesday)
18:30 – 21:30 B2-LP-01

Workshop facilitators: Dr LIU, Fung Ming Christy; Dr XIAO, Yangyu Shirley

The two sessions will be identical and students only need to register for one session. For students who are not available for sessions above, extra sessions might be provided as needed (please indicate your preference upon registration).

Registration: <https://goo.gl/forms/Tj0JNYjaI3Og0yEb2>



Registration is required for the preparation of workshop handouts and learning platform accounts

Enquires: Please contact Dr. XIAO, Yangyu Shirley at 2948 7337 or xiaoy@eduhk.hk.

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- Study summary writing skills through face-to-face workshop.
- Hands-on experience of writing a summary using the on-line summary writing platform.

Submitting summaries to the on-learning platform

Summary writing courses for Mathematics students

[Dashboard](#) / [My courses](#) / [Summary writing for math students](#) / [Summarise general mathematics articles](#) / [Task 1 - Who Says Math Has to Be Boring? - Part One](#) / [Preview](#)

Question 1

Not yet answered

Marked out of 1.00

Flag question

Edit question

Who Says Math Has to Be Boring?

American students are bored by math, science and engineering. They buy smartphones and tablets by the millions but don't pursue the skills necessary to build them. Engineers and physicists are often portrayed as clueless geeks on television, and despite the high pay and the importance of such jobs to the country's future, the vast majority of high school graduates don't want to go after them.

Nearly 90 percent of high school graduates say they're not interested in a career or a college major involving science, technology, engineering or math, known collectively as STEM, according to a survey of more than a million students who take the ACT test. The number of students who want to pursue engineering or computer science jobs is actually falling, precipitously, at just the moment when the need for those workers is soaring. (Within five years, there will be 2.4 million STEM job openings.

One of the biggest reasons for that lack of interest is that students have been turned off to the subjects as they move from kindergarten to high school. Many are being taught by teachers who have no particular expertise in the subjects. They are following outdated curriculums and textbooks. They become convinced they're "no good at math," that math and science are only for nerds, and fall behind.

That's because the American system of teaching these subjects is broken. For all the reform campaigns over the years, most schools continue to teach math and science in an off-putting way that appeals only to the most fervent students. The mathematical sequence has changed little since the Sputnik era: arithmetic, pre-algebra, algebra, geometry, trigonometry and, for only 17 percent of students, calculus. Science is generally limited to the familiar trinity of biology, chemistry, physics and, occasionally, earth science.

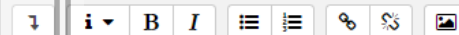
These pathways, as one report from the National Academy of Education put it, assume that high school students will continue to study science and math in college. But fewer than 13 percent do, usually the most well-prepared and persistent students, who often come from families where encouragement and enrichment are fundamental. The system is alienating and is leaving behind millions of other students, almost all of whom could benefit from real-world problem solving rather than traditional drills.

Only 11 percent of the jobs in the STEM fields require high-level math, according to Anthony Carnevale, director of the Center on Education and the Workforce at Georgetown University. But the rest still require skills in critical thinking that most high school students aren't getting in the long march to calculus.

Finding ways to make math and science exciting for students who are in the middle of the pack could have a profound effect on their futures, providing them with the skills that will help them get technical jobs in the fields of food science, computer networking or medicine. It would entice many students who are insecure in their own abilities into advanced careers. But it is going to require a fundamentally different approach to teaching these subjects from childhood through high school. Here are a few of the many possible ideas to begin that change.

The source pdf file is here

Submission:



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Automatic generated score and reference summary

Student's
summary

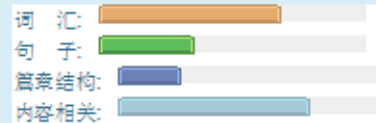
Submission:

Different kinds of approaches should be provided to students for changing their negative feeling about the subject of STEM that involving science, technology, engineering and mathematics. It is advised that a more flexible curriculum is needed. It is an excellent opportunity for students utilized skills on both theoretical and practical courses and their future career. Second, students should be exposed to mathematics from primary school or earlier since there are different research shows that early exposure to mathematics predict success in mathematics. Third, Mathematics teacher should be better prepared to teach the subject by participating various training. A well-prepared teaching can improve the effectiveness of teaching. Last, STEM course can be connected to the real world. It is helpful for high school students obtain more career experience.

Score: 62.01

Reference summary: The approach to teach math as suggested by the author consists of 4 aspects. First, students should be offered a more flexible curriculum by allowing them to have a greater choice between applied practical skills and abstract theoretical knowledge in math. Second, students should be exposed to math as early as preschool to increase their interest and success rate in math when they grow up. Third, students should be taught by certified teachers who have effective expertise and broad knowledge in math. Last, students should be encouraged to experience how math is connected with real world by linking them to potential careers and work that apply math into real lives.

分数评语:



评语: 文中高級詞彙使用較豐富, 但請注意積累詞彙量; 文章從句使用不錯, 但句法錯誤較多; 語言不流暢。

Automated
score

Reference
summary



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Sample grammatical feedback

Feedback
on
grammar

Different kinds of approaches should be provided to students for changing their negative feeling about the subject of STEM that involving science, technology, engineering and mathematics.

- [名詞錯誤] 請檢查**their negative feeling**，該處名詞一般使用複數形式。
- [推薦表達] a variety of/a wide range of/diverse/diversified與**different kinds of**意思相近，可參考使用。
- [推薦表達] assorted與**Different**意思相近，可參考使用。
- [拓展辨析] 動名搭配 change...feeling 在語料庫中出現過 11 次
- [推薦表達] transform/alter/shift/switch/convert與**changing**意思相近，可參考使用。

students should be exposed to mathematics from primary school or earlier since there are different research shows that early exposure to mathematics predict success in mathematics.

- [句子錯誤] 請檢查**predict**，確認主謂一致。
- [大小寫錯誤] 請確認句首單詞大寫。
- [搭配警示] **different research shows**疑似中式英語。
- [拓展辨析] 動名搭配 predict...success 在語料庫中出現過 54 次
- [推薦表達] otherwise/if not/before/or else與**or**意思相近，可參考使用。

Third, Mathematics teacher should be better prepared to teach the subject by participating various training.

- [拓展辨析] 動名搭配 teach...training 在語料庫中出現過 5 次

A well-prepared teaching can improve the effectiveness of teaching.

- [冠詞錯誤] 冠詞多餘，請檢查**A well-prepared teaching**。
- [拓展辨析] 動名搭配 improve...effectiveness 在語料庫中出現過 27 次

Last, STEM course can be connected to the real world.

- [句子錯誤] 動詞原形一般不能做狀語，請檢查**STEM**。
- [學習提示] 易混詞彙: earth, world, globe 均可表示“地球”之意。

It is helpful for high school students obtain

- [動詞錯誤] 請檢查**obtain**，確認動詞用法正確。
- [拓展辨析] 動名搭配 obtain...experience 在語料庫中出現過 6 次

Self-
reflection
on content



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Thanks for completing the summaries. Now you can spend two minutes reflecting on your summary.

Please click here.

Self-reflection

My summary is brief and is within the word limit

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

I have included main ideas.

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

I have included key supporting details.

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

I did not include specific information.

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

I did not add in my own opinions (objective).

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

My summary truly reflects ideas in the source text (no misinterpretations).

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

I use synthesizing and paraphrasing (no direct copying).

- Not selected
- Yes. I have achieved this criteria.
- I could be doing better at this.
- I am not doing this and I need to work on this.

(Areas for future improvement) Which aspect do you think you can improve more after this summary?



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Workshop feedback questionnaire responses

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
1. The content of this workshop is relevant to my study.	30	2	5	4.07	.868
2. There were sufficient practice activities provided in this workshop.	30	3	5	4.23	.568
3. This workshop addressed my needs in writing a summary.	30	3	5	4.10	.662
4. The workshop helped me develop an understanding of characteristics of a good summary.	30	3	5	4.20	.805
5. The summarising skill that I learned in this workshop will be useful for my future writing (such as honors project writing).	30	3	5	4.13	.681
6. I would like to attend more summary writing workshops like this one.	30	2	5	3.97	.850
7. The feedback provided by the on-line learning platform is helpful	30	2	5	3.93	.740
8. The on-line writing platform provides me with chance for self-study.	30	2	5	4.13	.776
Valid N (listwise)	30				



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Major themes from student interviews

- EMI education and discipline-specific language needs
- Development of discipline-specific summary writing skills
- Perceptions of machine generated feedback
- On-line learning platform and chance for self-study



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EMI education and discipline-specific language needs

- Challenges for EMI education: Academics' and students' language proficiency in discipline-specific areas
- Supportive role of discipline-specific workshops
 - relevant to subject-matter
 - more interesting to read
 - discipline-specific reading facilitates the study summary writing skills

I am grateful that we have such a workshop, in particular that one reading is related to primary mathematics. We did not have such summary workshops related to our major before. It's easier for me to understand math literature. I like this workshop (S7).



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Development of discipline-specific summary writing skills

- Development of summary writing skills, including:
 - Structure of a summary
 - Strategies in organizing a summary
 - Strategies in extracting useful information from the text
 - Chance of practising summarizing skills

The workshop helps. It helps me write a summary in an organized way. Before attending this workshop, I wrote a summary according to the sequence that information occurred. Now I know I need to start with a purpose, then discuss the the key issues, and finally end it with a conclusion. In my view, such a summary is more complete (S4).



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Development of discipline-specific summary writing skills (cont.)

- Evidence of using summarizing skills in course writing.

After that workshop, we had an assignment of writing a summary of two research articles. The strategies I learned in the workshop are quite helpful. When my classmates peer reviewed my summary and they commented that I wrote the summary in a professional way (S3).

I am now working on literature search for my Honors Project report writing. I know I need to pay attention to the first paragraph, topic sentence and abstract, and search for information I need. And I know how to summarize after reading a literature (S2).



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Perceptions of machine-generated feedback

Strengths

- The system helps with checking the grammar.
- The reference summary tells us what a good summary look like.

We can compare our summaries with the good one and see if there are any differences. Just like when you take IELTS, you would like to know what an essay achieving Band score 9 looks like (S6).

Areas for improvement

- Feedback on content and logic can be provided.

The feedback focus on grammar only. I hope in the future content feedback can be provided (S3).

- Bullet points on key information can be provided.

You may list the key points for us, for examples, points that must be included and points that need to be considered. That would be helpful (S8).

On-line learning platform and chance for self-study

➤ Good chance for self-study

Chance for working on language with minimum teacher support (S4).

Chance for self-study at students' own learning pace, without taking a writing course (S7).

➤ Chance for self-reflection

The self-reflection function serves as a checklist and remind students of the standards (S5)

➤ Chance for self-study can be enhanced by interactive functions



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➤ Willingness to use the platform is related to learning needs

Students' expectations on future learning activities.

Students identified a number of areas for future discipline-specific language learning:

- Words and vocabulary that suitable for academic writing.
- Developing introduction and conclusion.
- Developing the structure of an essay.
- Writing lesson plans and rationales.
- Disciplinary language courses for different year groups.



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Conclusion

- The study supports the needs for discipline-specific language learning in the EMI context.
- The current study develops an discipline-specific on-line learning platform.
- The on-line summary writing platform supports students' learning needs by helping them develop summary writing skills, and offering chance for self-study.



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Way forward and Implications

- The on-line learning platform can be re-trained by the texts from other disciplines, so as to provide summary writing training for a range of disciplines.
- Further discipline-specific language learning activities can be provided, by taking into consideration:
 - students' learning needs
 - students' language proficiency level
 - chance for knowing the standards and obtaining feedback
 - chance for student engagement and self-study



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Thank
You

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