



HKU ChemApp: Supporting Student-Centred E-Learning & Promoting Peer Learning Atmosphere for Undergraduates in Chemistry

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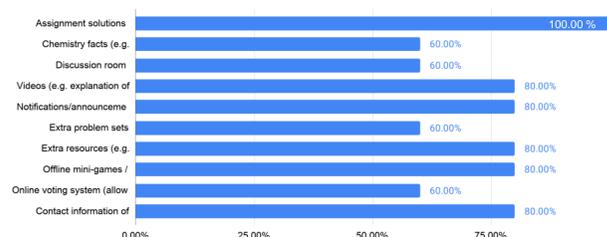
Background & Objectives:

As smartphones and digital gadgets become ubiquitous, instead of seeing them as a distraction in class, it is a good idea to utilize them to engage students more deeply in learning. While smartphones, installed with an app and connected with a sensor probe, are already used in some of the lab classes in CHEM1042 General Chemistry I to make the laboratory training more effective and fun, we have sought to extend this strategy from in-class teaching to out-of-class involvement. Funded by TDG, we developed a mobile app called **HKU ChemApp** with the aims to promoting student-student interaction and a peer learning atmosphere, supporting learner-centred e-learning, and increase student enthusiasm for learning.

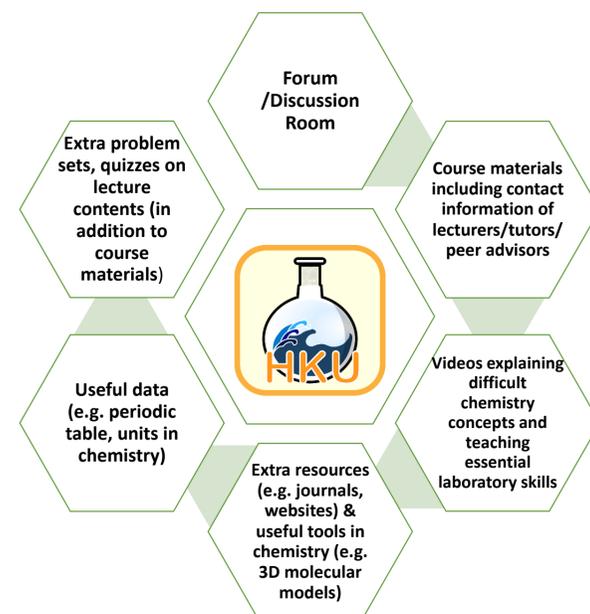
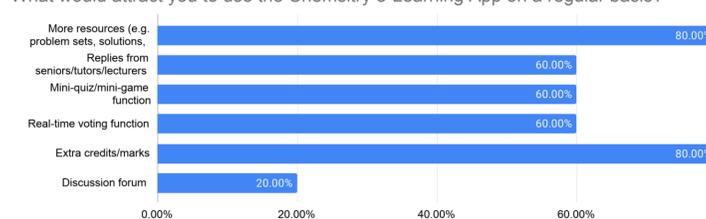
What do students want to see in a Chemistry e-Learning App?

At the start of the app development project, a student opinion survey (with 62 respondents participated) was conducted to understand students' needs and expectations with regard to Chemistry learning and the App.

What features do you think the Chemistry e-Learning App should incorporate?



What would attract you to use the Chemistry e-Learning App on a regular basis?



Summary Showing the Major Features/Contents that Students Want to See in **HKU ChemApp**

Results & Discussions:

With the help from TeLi, an integrated mobile app, called **HKU ChemApp**, for undergraduate students studying chemistry, was successfully developed and launched in mid-January 2022. In this early stage, the three introductory CHEM courses, namely CHEM1041 Foundations of Chemistry (~50 students per annum), CHEM1042 General Chemistry I (~480 students per annum) and CHEM1043 General Chemistry II (~200 students per annum), are first covered in the app and students taking these courses will use the app to support their learning. In addition, all registered Chemistry students can participate in the app Forum, which serves as a common platform for them to exchange ideas and to connect to each other.

We aim to promote the app to cover as many CHEM courses as possible in the near future, after the teething problems such as any minor bugs, registration problems (e.g. login problem for freshmen due to the recent migration of HKU emails from Gmail to Microsoft Outlook) and occasional content uploading problem of the app, are resolved in the coming months. Some student comments about the **HKU ChemApp** are shown on the right. And since the launch in mid-Jan, the number of downloads of the app has hit **509** (iOS: 359; Android: 150), as of 27 Sep 2022.



The app has provided a lot of additional sources, such as articles and videos that complement the lecture contents. I can check out this information according to my own learning pace.

I found the app a handy and useful tool to obtain extra resources such as the videos showing some basic laboratory techniques.

The discussion forum could foster the exchange of ideas among students, which plays an important role in active and self-engaged learning.

Promotional video showing the main features of **HKU ChemApp**



An augmented reality (AR) modeling kit is incorporated in the app. See the demonstration video.



Acknowledgement: The project investigator would like to thank TeLi for co-developing and offering help to run **HKU ChemApp**. Special thanks go to Mr. Ka Lok Wong, a chemistry graduate intern, for his hard work in assisting to develop the app. Many thanks also go to a group of undergraduate chemistry helpers for their enthusiasm for providing useful inputs to this app development project.