



A quick introduction to the flipped teaching method.

Introduction

Essentially 'flipping' means that we turn (flip) Bloom's taxonomy (classification) of learning objectives [1] on its head so that the lower level learning objective such as acquiring information/knowledge are moved out of the timetabled slot¹ where they are traditionally covered, to *guided independent study*² and use the timetabled slot for higher learning objectives such as application and analysis, where it is normally much better to have help at hand (see figure 1). Whilst there is a certainly lot of discussion in the pedagogical literature about its merits and shortcomings, there is published evidence that a flipped approach will improve understanding and examination marks [2]. The traditional lecture format is around 1000 years old and necessary when printed information was extremely uncommon, i.e. the lecture was used to convey information which was not otherwise accessible. There is now essentially no barrier to access to information.

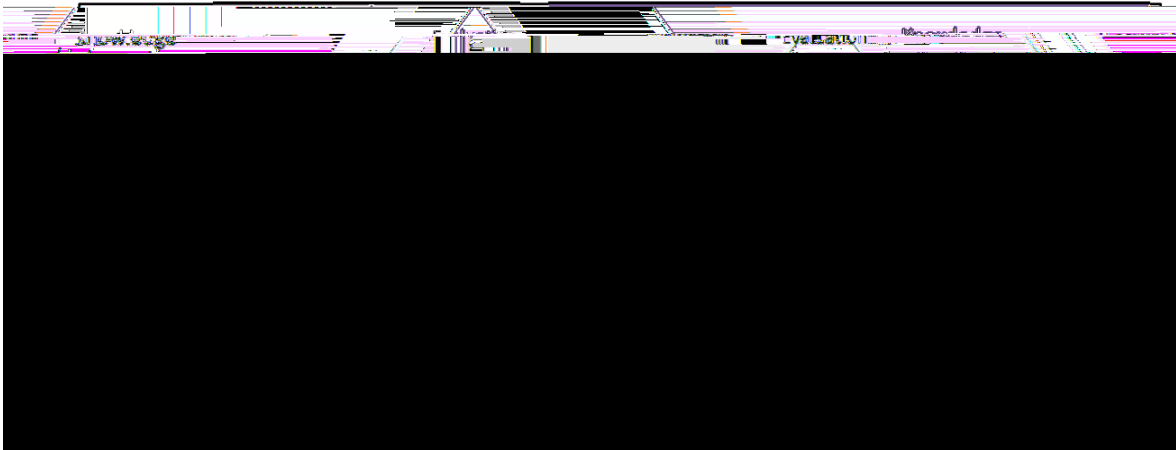


Figure 1: Bloom's taxonomy of learning objectives in pyramid form showing low level learning objectives delivered in a traditional lecture format vs. high level learning objectives addressed during the contact time in a flipped lecture. Note that the pyramid representation of the taxonomy has recently been receiving significant criticism (in fact Bloom did not propose this representation) and the taxonomy has been revised recently. For those interested see David Krathwohl's [3] article: <https://www.dpa.uw.edu/files/resources/kvaid/Kranis>

Summary

To give yourself the best chance of developing a good understanding of the material as well as attaining a good mark in the module, what you need to do is:

Before the timetabled slot:

1. Put aside around 30 minutes to 1 hour in the week *before* the lecture to watch/read the learning materials in Learn. Plan in advance where and when you will do this around your other (academic/social/sport) commitments. It is not important when you do this, but leave enough time to do so.
2. Make your own notes based on the content of the video and the text material.
3. Attempt the questions associated with each block of learning material to self-assess your level of understanding.
4. Discuss this with your friends. Explaining something to someone is a very good way to ensure you understand it.

In the timetabled slot:

1. As questions, discuss the problems with your fellow class mates and attempt the questions. You may want to initially attempt the questions on your own and then discuss your answer. You may need to occasionally quickly refer to the notes. This is fine, but there will not be time to watch and read everything for the first time.

After the timetabled slot:

1. You may need to go back to the videos and clarify your thoughts and refine your notes. These notes will be invaluable for revision.
2. Attempt the questions again and if there are still points you do not understand make sure they are explained to you, either by your colleagues or the lecturer.

References

- [1] Bloom, B., Enlehart, M., Furst, E., Hill, W. & Krathwohl, D., *Taxonomy of education objectives: The classification of education goals. Handbook I: Cognitive domain*, Longmans, Green and Co. Ltd. London, 1956.
- [2] Weaver G.C. & Sturtevant, H.G., *Design, Implementation, and Evaluation of Flipped Formative General Chemistry Course*, J. Chem. Educ., 2015, 92, pp. 1437-1448
- [3] David R. Krathwohl, *A Revision of Bloom's Taxonomy: A New Classification of the Cognitive Domain*, *Journal of Educational Research*, 2001, 94(2), pp. 171-176