

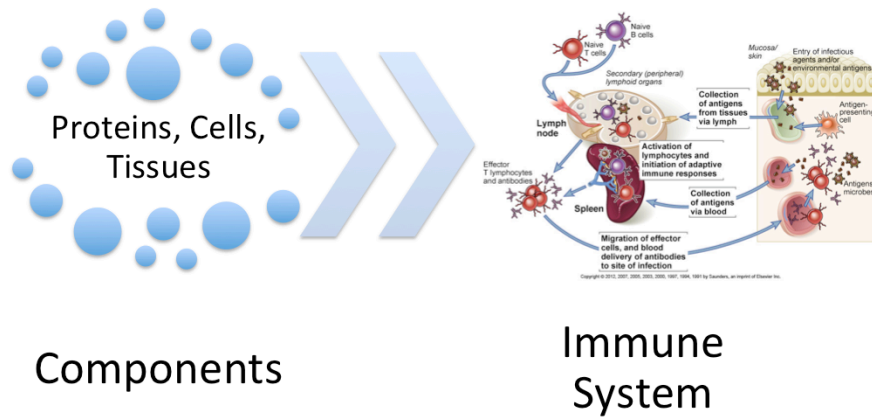
Writing Assignments Evolve When Disciplinary Faculty Collaborate with Writing Specialists

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IWAC 2014

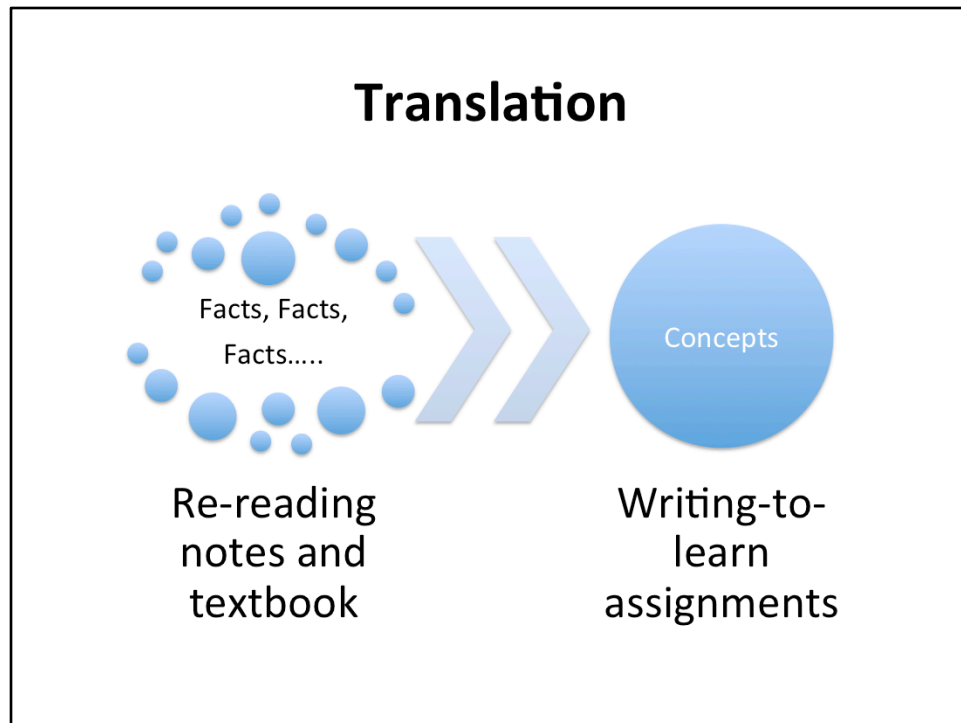
Disciplinary faculty tend to think of the Writing Center in the context of helping with learning to write assignments

Today I'd like to describe the evolution of writing to learn assignments that I have developed for an upper level Immunology course and the support I have received from both our Writing Center and others involved in teaching and learning.

Pedagogical Goals



One of the on-going struggles in Biology curricula is encouraging students to understand biological phenomena as systems of interacting and coordinated components



Students unfortunately reinforce the emphasis on individual components through the strategies that they use to study biology.

They too often emphasize the memorization of the unlinked facts and rely on study techniques that facilitate memorization while faculty want students to synthesize this new knowledge into a conceptual

framework emphasizing the interactions of these components.

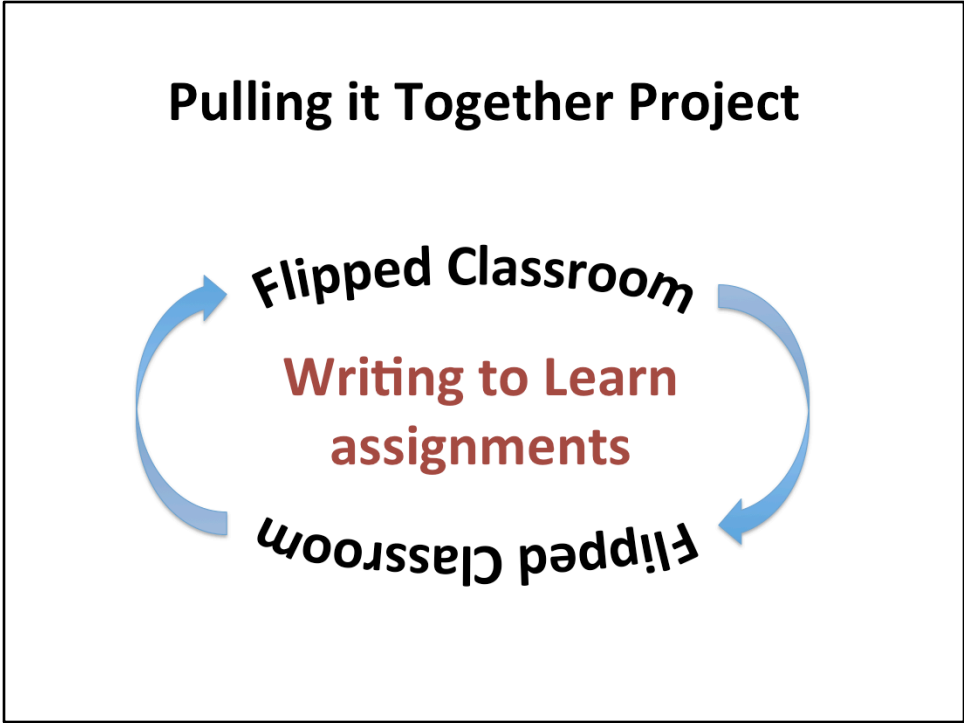
A few years ago I developed writing to learn in my immunology course with the goal

These assignments were voluntary, ungraded, though they did count for a few points and completed outside of class.

A remarkably high percentage of students participated, though I discovered that very few of the students used the assignments to help them study.

Anecdotally, they indicated to me that they did not trust that their answers were correct and they did them just for the few points they were worth

I realized that one of the failings of these assignments is that it still left students to work on their own on one of the most difficult aspects of learning-synthesizing the material



Therefore in the next iteration of this project, I chose to flip the classroom and move these assignments into the lecture.

Thus, I would be available to facilitate their learning and help them synthesize the material and apply it to new situations

Elements of a “Pulling it Together” (PiT) Session

- Videos
- Quiz

Review

- Videos
- Reading

Prepare



In this “Pulling it Together” or PiT Project, 5 lecture classtimes were used to provide in-class time to work through the synthesis of difficult topics in immunology.

Students were required to review the relevant past material and take a quiz

They also had to prepare for the session, by watching a micro-lecture video or reading material to prepare them for the assignment

Moving from facts to concepts



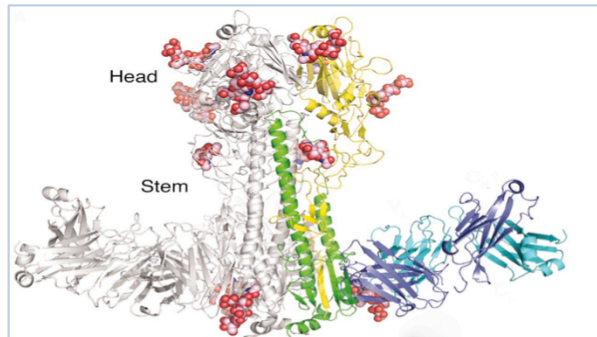
1. Draw a Fab fragment, using a simple schematic, including the CDRs.
2. Draw a Fab fragment using a ribbon diagram, including the CDRs.
3. Compare your two figures. Which figure most clearly represents the function of the CDRs in antigen binding?
4. Briefly explain to someone what we mean by constant and variable regions. What is their contribution to antibody function?

Some questions required them to review by working with the material in various ways

Here by drawing and explaining

CR8020 is a broadly neutralizing Ab that recognizes H1 and H7. The image below shows the Fab derived from CR8020, complexed with an H3 molecule.

1. Locate the CR8020 Fab fragment in the image.
2. Circle the Ag binding domain on the Fab.
3. Identify the Variable and Constant domains of the Fab.



Other questions then required them to apply their knowledge to new situations. Students were encouraged to bring whatever materials they thought useful to class and to work together on the questions.

There was a definite buzz in the room and by the second or third session, students appeared very comfortable with the process.

Although the PiT Project was voluntary, only 9 of 197 students did not complete the Project.

With respect to its impact on student grades, it appears to have shifted grades up.

There was a higher percentage of A's and a lower percentage of C's.

However, it is difficult to assess this, because there is some variation from year to year, and Auburn has in recent years targeted different high school populations.

It does appear that the project had a strong positive impact on the students' perceptions of their learning.

At the end of the semester, students were asked to complete a survey about the Project.

After the semester ended, the Writing Program Office collated the results and discussed the results with me.

It involved both a set of Likert questions as well as two open-ended questions asking for their comments.

| Question | Mean Response (out of 5) |
|---|--------------------------|
| I found the PiTs an interesting way to test my understanding | 4.2 |
| I found discussing the material with other students improved my understanding | 3.9 |
| I found the PiTs encouraged me to organize the material | 4.0 |
| I found the PiTs increased my understanding of the material | 3.9 |
| I felt well-prepared for the PiT sessions | 3.8 |
| Overall, the PiT Project enhanced my understanding of the course material | 4.0 |

The results of the Likert questions indicated that students found it very useful in improving their mastery of the material including
 Increasing their understanding and ability to organize the material
 They also found that the preparatory material was useful

Individual Student Comments

- Most useful aspects
 - Integrating concepts
 - Getting explanations
 - Critical thinking
 - Made me study
 - **Talking it out**
 - Changed the routine
 - Got points/helped my grade
 - Practical application

Their individual comments about the most useful aspect of the Project were very similar to their responses to the questions

It helped them integrate the material, helped them stay caught up and they found it useful to talk things over with their fellow students

Individual Student Comments

- Suggestions for improvement
 - Better time management during the PiT session
 - Limit discussion
 - Shorter assignments
 - Response
 - Move more of the review questions to an assignment done before the PiT session

When asked for constructive suggestions their responses fell into two major categories

They felt that there was too little time and that the time in class needed to be better managed

I had observed that as well

One aspect that was particularly interesting was their desire for more support

There's a certain irony in this as one of the goals of this Project and my style of teaching in general, is to develop their skills at self-assessment

I do see in this though, the opportunity for more modeling of how to think things through

One additional concern I have had is seeing how little they are willing to write down before getting the answer from me

They do seem keen to discuss, but they are very anxious about putting anything into their notes that might be incorrect

I had observed this behavior before

I understand the concern, but I am also worried that it prevents them from really working things through

So, in discussion with Dr. Margaret Marshall from the Office of University Writing, I am responding to this analysis by

Individual Student Comments

- Suggestions for improvement
 - More support
 - More guidance
 - More structure
 - More explanation from the instructor
 - Response:
 - Build their confidence in working on their own and encouraging them to write!

Writing is Thinking on Paper!

-Howard Zinner

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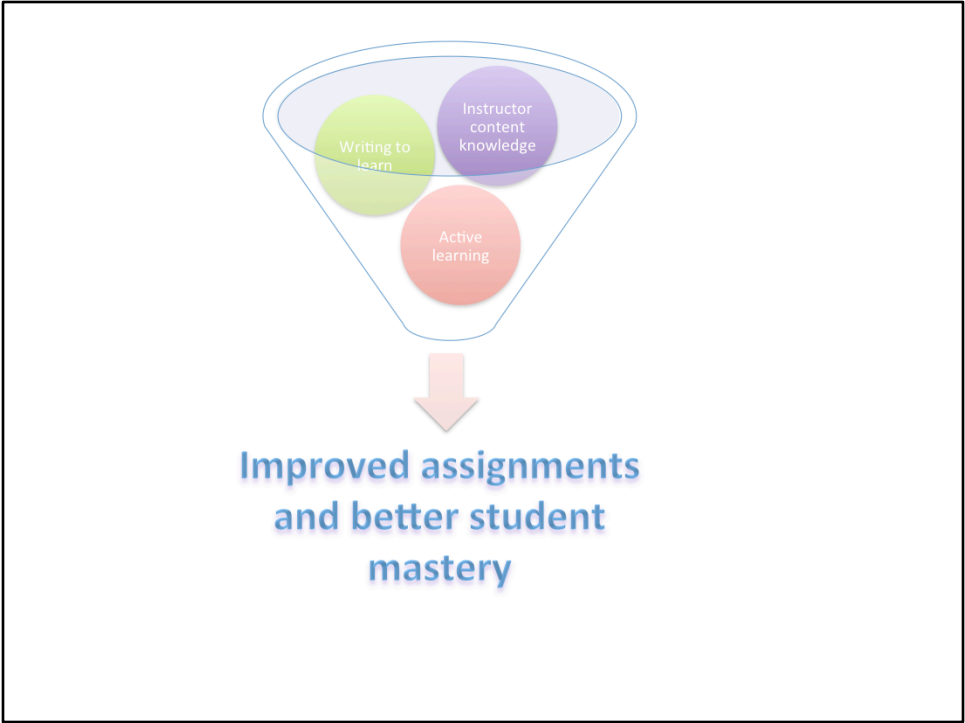
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So, in discussion with Dr. Margaret Marshall from the Office of University Writing, I am responding to this analysis by moving some of the review questions out of the time spent in class and focusing in class on the application of the material to new situations. I am also working on developing strategies to encourage them to develop



Thanks to

- Dr. Margaret Marshall and the staff of the Auburn University Office of University Writing
- Dr. Wiebke Kuhn and the staff of Information Technology, Auburn University College of Liberal Arts

So, in closing, Coordination of support from experts in pedagogy and writing instruction with disciplinary faculty can lead to better assignments and teaching practice.

Thank you