Interdisciplinary Learning: Thinking with Others to Solve Problems

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Looking back at great achievements, we sometimes make the mistake of thinking the achievement was an obvious solution to a problem, something that was inevitable or even something that could have just been googled. Do you have a problem in finding a way to bind thirteen American colonies together politically, culturally, and economically? Simple. Just say, "Alexa, where do I find the American Constitution?" Do you hope to develop a personal computer that will fit on a desk instead of in a warehouse? Simple. Open your navigation app to get directions to Steve Jobs' garage.

Of course, these examples are simplistic and fallacious. When groups of humans are confronted by a task or a problem, the solution is seldom obvious. In fact, even the process to find a solution (that may or may not exist) is complicated. For example, there is clear evidence that the climate of the earth is changing in dangerous ways. How do we solve that? Who has the answers? Is it a technological solution? What type of experts can help? Scholars of atmospheric science? Chemistry? Politics? Economics? Psychology? The answer is yes, all of them. Time and time again, we see that complicated problems can only be addressed with the best thinking of people trained in a variety of fields.

The problem is that too often, we approach college as a series of classes taken from different professors from different parts of campus. This approach allows much-needed specialization—plus, can you imagine taking just one four-year college class titled Knowledge? However, if we are not careful, we miss an opportunity to do what the subtitle of this chapter suggests: thinking with other people, people with different perspectives and expertise, to solve problems. Foundation classes are part of Snow College's effort to give 18 you a chance to do this. In other words, Foundations classes are about interdisciplinary learning.

Interdisciplinary Learning?

To understand the phrase interdisciplinary learning, we need to begin with the word discipline, which is not being used as a verb denoting punishment. Discipline as a noun refers to an area of knowledge. It comes from the Latin words discipulus (student) and disciplina (learning), making discipline a reference to findings, conversations, and assumptions of different academic fields. For simplicity, you can equate discipline at Snow with the different prefixes for the classes you take: CHEM, PE, ENGL, HIST, or MATH. Of course, we can be even more specific about the disciplines in a Snow College department. A member of the Biology Department may specialize in genetics, or a member of the Home and Family Studies Department may specialize in nutrition. Interdisciplinary also has the prefix inter-, which denotes the ideas of between, among, and reciprocity. So interdisciplinary work occurs when there is a synthesis of efforts and knowledge between different academic fields.

With this understanding, we can see that interdisciplinary learning is learning that takes place using multiple disciplines. It occurs when mathematicians work with astrophysicists to understand the cosmos. It occurs when a literary scholar and a music scholar learn from (or with) one another to more fully understand the art created in the Harlem Renaissance. It occurs when a marketing professional finds new ways to sell food in a supermarket using principles articulated by psychologists.

These are just quick examples, and interdisciplinary learning can take many forms. However, there are at least four key concepts to remember about the nature of interdisciplinary learning:

1. **Disciplinary Value:** From the outset, interdisciplinary learning requires the assumption that there is value in the knowledge and perspectives of every 19 academic discipline. No single field is sufficient to understand the world around us, and there is no discipline that can’t aid in our learning.

2. **Personal Connections:** One important organization for encouraging learning in college, AAC&U (Association of American Colleges and Universities), has defined key criteria for recognizing interdisciplinary learning: learners will connect new concepts to their personal experience and their existing knowledge. They will be creative in approaching complex problems using insights from a variety of disciplines, areas, and methods. And they will recognize that they are, in fact, being interdisciplinary and make these efforts part of who they are as learners—and as people.[1]

3. **Openness to New Ideas**: At its core, interdisciplinary learning is problem solving. Because it requires us to be open to things we don't know—or don't even know that we don't know—it leads to innovative ways forward. It requires conversation, careful listening, academic humility, and curiosity.

4. **Depth of Knowledge:** Finally, interdisciplinary learning requires a balance of the two parts of its keyword. In focusing on the inter- part of the word, the connections between areas of study, we run risks if we discount the discipline part of the word, which focuses on the knowledge and perspective from an area of study. We can only learn from others if they have something to teach, and if we simply dumb down the knowledge of another discipline in adapting it to a new situation, we erode the foundation that learning is based on.

Interdisciplinary Learning in Foundations Classes

This then is the purpose of the class you are taking. It is about the foundation on which learning is based: clear, rigorous, logical thinking in disciplines that can be shared with others to solve problems. While your Foundations course can't do this for every aspect of your education, it can add to your early college experience by making you aware of the importance of interdisciplinary learning, something that will give meaning and purpose to your other general education and major classes. If you don't like math classes, you might

[1] Association of American Colleges and Universities. "Integrative and Applied Learning VALUE Rubric." 2009. http://www.aacu.org/value/rubrics/integrative-learning.

focus on how the class is building your skills in logical thinking, something that will help you in running your own business. If you don't like reading literature, you might focus on how the class is giving you insights into the human experience, which will help you as you begin a career as a social worker.

If you reflect on the learning opportunity your Foundations class offers, you'll see all four insights from the previous section in your class. I wish you could have been in the room when your Foundations teachers began planning your class and discovered how enriching the conversations with fellow teachers are to their own fields. I experienced this when I realized that the simplicity and beauty of DNA's double helix is a perfect example of Plato's theory of universal forms. Your teachers had—and are having—similar epiphanies.

You will also be able to see connections made and knowledge transferred to new situations as you participate in class discussions and complete the assignments in Foundations classes. Furthermore, watch for these connections in other classes you will take. Your classes may not be about climate change, but there are problems, mysteries, hopes, and sought-after innovations in every academic discipline. Watch how much richer that the problem solving process is because of interdisciplinary learning, how one class connects to the next. The connections will not always be obvious, and you may not, for instance, solve climate change in your class. However, you will experience the process that is being used to address it and other complex problems.

Finally, you will see what may be the most important part of Snow's Foundation classes. Rather than asking a single professor to teach an interdisciplinary class, Foundations classes bring three professors together. This preserves the value of having an expert teach you to exercise physiology rather than a history professor. While maintaining the importance of disciplinary expertise, the class also lets you see the conversations among 21 those disciplines and experts. Your professors won't always agree, but they will listen to each other. Additionally, you get to participate in that conversation, bringing with you your own expertise. That model will help you understand how disciplines connect as you progress

through your college experience, giving you a "foundation" to see the ways in which your studies tie together and connect to your life, the lives of others, and your career plans.

Conclusion

In the end, you can think of your Foundations class and your college career as a real-life experience that is described in the old analogy of the blind men encountering an elephant. One feels a leg and thinks it is a tree trunk. Another feels the ear and thinks it is a fan. It isn't until they share their experiences—learning, speaking, listening, and thinking— that they put the parts together and realize it is an elephant. Learning is hard to do alone. That is why we have teachers. However, this class goes beyond that by giving you a chance to learn interdisciplinarily, to have multiple teachers, and to be part of the teaching yourself. It requires research, conversation, and collaboration—and time—to think through these issues to solve problems that are not obvious and inevitable and to help make that kind of thinking central to your college learning experience.