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CSB Convocation 2012

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Good morning and welcome! And for many of you welcome back!

When I received the Sister Mary Grell teaching award, I thought it might mean getting a parking spot closer to Ardolf in the winter or something like that. Little did I know it meant I would be giving a talk at convocation.

So, when I started preparing to give this talk I listened to several convocation speeches from the past. Many were very eloquent, inspiring and quoted poets and literary giants. Some gave lessons from their disciplines and others talked about life lessons.

As was mentioned earlier, I am a scientist. Scientists tend to be very focused and concise in how they write and communicate. So, I may not be able to offer you quotes from literary giants or an eloquent talk, but I can offer you something more tangible – brevity! I was told I had 15 minutes to speak to you. Believe me, I will be done much quicker than that. I have a lesson from my discipline and a short story.

One of the many courses that I teach is organic chemistry. Organic chemistry is one of those courses that tends to send shivers down the spines of all who aspire to practice chemistry, pharmacy, medicine or any other health profession. It has a reputation as a frightening and incomprehensible course. Really, I don't know why? Regardless, I think there is a lot one can learn from chemistry. Not just about atoms and molecules, but life lessons.

Ask anyone who has survived organic chemistry (and there are many), and they will tell you: there is a central model to explain a great deal of the phenomenon associated with organic chemistry. The central model is something called resonance. What the heck is resonance you might ask? In a nutshell, resonance helps explain why some systems are unusually stable.

It is a little more complicated than this, but for your chemistry lesson today you can think of this special stability coming from the pieces of these systems working together to “share the load”. One way to think of it is, it is easier for two people to carry a 50-pound bag of salt than it is for one person to do it. Granted, in the context of molecules and energy, it is much more complicated than hauling bags of salt around, but for all practical purposes, it boils down to pieces (atoms) working together to make things easier (more stable) as a whole.

Let me try to put this in a slightly different context. How many of you have been involved in a team sport?

Good! As you know, it is not so hard to play against a team that has one star player who dominates play. If you can defend against the star player, you can usually be successful. If, however, you have a group of players who maybe have less talent than the star, but who play as a team, it is much more difficult to defend against them. In other words, by working together the talent of the team is greater than the average of the talents of the players. Another way to say this is “the whole is more than just the sum of the pieces”.

So why would I choose to talk to you today about “resonance”? It is not just because it is a central concept in organic chemistry, but also because I believe it is a central concept in good teaching and learning. If you will, students and faculty are the “pieces” in our model, and we share a burden of teaching and learning. We work together toward a common goal of demonstrating that we know how to think critically.

Just like in resonance where atoms work as a team, so too in life **you** are expected to work as part of a team. Just to show you how valuable of a skill this is, there was a recent survey of 70 biotech companies in Minnesota. They were asked what characteristics they wanted in an employee. Good communication skills, hard working, teamwork skills and strong problem solving skills were the top four.

Lucky for you, you are in the right place to learn about teamwork. Last week at faculty workshops (yes, faculty come in here early to prepare for classes) the faculty were shown all sorts of statistics about our graduates and how they are doing in the work force and what they valued from their time at these institutions. Teamwork building skills were listed as one of the categories that our students excelled at compared to our peer and aspirant institutions.

It is my wish that while you are here you learn the skills necessary to effectively work together as a team to explore the various types of problem solving methods used in different disciplines. Note that I used the phrase “problem solving” instead of finding an answer.

Now, let me tell you a little story about the difference between searching for answers and problem solving ...

How many of you know what this is (slap a post it note to the front of the podium)?

Do you know this is the result of failure?

In 1968, a local company called 3M (you may have heard of them) was charged with developing a super strong glue that could be used in the aerospace industry to build planes. One of the people working on this project was a chemist named Spencer Silver. As a researcher, Dr. Silver did many experiments trying to find this elusive super strong glue. In 1968 he concocted a polymer that was exactly the opposite of what he wanted to achieve. Instead of holding onto objects after it was applied, the polymer let go easily (remove sticky note). In other words, it was a glue that didn't stick very well. Not the kind of thing that will hold airplanes together (at least I don't want to be riding in those airplanes).

If Dr. Silver was looking for an answer – the answer to his question was that he had another failed experiment. If he was just looking for an answer this is where the story would end.

Luckily for us Dr. Silver believed in teamwork and was good at problem solving and knew there had to be some good use for a non-sticky glue. Dr. Silver persisted in trying to find a use for his adhesive.

Thinking that more heads were better than one (in other words teamwork), he would hold seminars in 3M sharing his discovery and appealing to the audience for applications for the glue. One of those many seminar attendees was Dr. Art Fry, a fellow 3M scientist.

The question that Silver proposed kept churning in the back of Dr. Fry's mind. One day, while he was singing in his church choir (you might call it divine intervention), the scraps of paper that he used to bookmark his hymnal fell out as he stood up to sing. Suddenly, an idea struck his mind.

And just like that, a new form of communication and information organization was born.

Without teamwork, problem solving and creativity we would never have our sticky note to-do lists.

There are many questions facing the world that will require an open-minded, multidisciplinary, multicultural, multigenerational, multi-everything approach. For example: finding solutions to the looming issue of climate change will require the participation of scientists, politicians, ethicists, religious leaders and every citizen of the planet. Until **and** unless this diverse group of people learns how to communicate with each other and learns how to problem-solve as a team, solving the climate change problem will be as elusive as finding a use for a not-so-sticky adhesive.

The list of these issues is long and not confined to science. The world needs people who can work across “party lines”, think creatively and critically, and communicate with all kinds of people. This is exactly what a liberal arts education prepares you to do. Although you might not fully realize it yet, this is why you are here.

So on behalf of the faculty, it is my privilege to welcome you here to the College of Saint Benedict. I wish for you a wonderful fantastic year ahead.

Thank you.