

Every Curriculum Tells a Story

Roger C. Schank

Socratic Arts

<http://www.socraticarts.com>

Once upon a time, there was a kingdom that was overrun with dragons. The people were terrorized by the dragons, so they decided to build a new curriculum in their finest university to train young warriors in the art of dragon slaying. The university they selected had a faculty that knew many different things that would be of potential use to a dragon slayer, so the faculty met and formed a curriculum committee to establish a master's degree in Dragon Slaying. The committee drew on all the wisest faculty in the university, so it had faculty from the arts and faculty from the sciences. There were business faculty and law faculty and medical faculty. The engineering faculty was represented and so was the humanities faculty. Surely from such an erudite group, the best and the brightest could instruct those who wished to learn how to slay the dragon.

At the curriculum-planning meeting, everyone agreed that each faculty member had something important to contribute. The business faculty was concerned that potential dragon slayers understand how to finance a dragon slaying expedition, and know how to create a business plan to market the story and lessons derived from a successful voyage. The engineering faculty wanted to make sure that the student warrior would know how to read maps, build bridges

where needed, and launch missiles. The humanities faculty realized that dragons could be reasoned with and proposed a course in how to speak Dragonese and how to negotiate with dragons. The legal faculty was concerned with dragon rights and potential lawsuits, and suggested a course in law for the neophyte warriors. The arts faculty wanted to make sure that the public would be able to see what the dragon looked like, and suggested the use of photography and drawing courses. The scientists wanted to know about the habitats and evolutionary history of the dragon, and therefore proposed teaching a basic course in evolution and biology to the students in the program. The medical faculty was concerned that students might not know how to kill the dragon properly if they failed to understand how dragons were constructed.

As it happened, this university was the most prestigious one in the land. Consequently, its faculty were very busy working on government funded research projects and on traveling around the world giving invited speeches as well as consulting to business. They didn't really like to teach all that much, and they hated to have to develop new courses because these were a lot of work. They were willing to develop *some* new courses, but new courses for master's students were never a priority. They each decided to choose courses from existing curricula that would be appropriate for the novice dragon slayers. In this way, students would get a broad education that would serve them well. When they finished, this was the curriculum they chose:

First Semester

Introduction to Dragonese
Basic Legal Concepts
Introduction to Photography
Introduction to Anatomy
Strength and Materials

Second Semester

Introduction to Dragonese II
Civil Liberties and Animal Rights
Introduction to Drawing

The Anatomy of Dragons Projectile Physics

All agreed that this was very good curriculum indeed, but that it was difficult to cover everything needed in a one year master's program, so it was decided to make the dragon slaying master's a two year program. This was the second year curriculum they agreed upon:

Third Semester

Basic Negotiation
History of Warfare
Introduction to Ethics
Evolutionary Biology
Introduction to Map Reading

Fourth Semester

Introduction to Public Policy
Basic Marketing
Basic Finance
Introduction to Computation
Logistics

The faculty was very proud of this curriculum, and they agreed it was well balanced and covered everything a student would need to know. A student body of twenty was recruited, and they all graduated two years later, most of them with high honors. They then went out to slay dragons.

Three of them failed to win funding for their expedition, and they went into other fields. Five of the remaining formed a dragon slaying team, but they had great difficulty getting along with each other. One of the members killed another one, and then the rest killed him. The other three ran away and were never heard from again.

The remaining twelve were more successful. They formed three teams of four, were well financed, and got along well with each other. Unfortunately, the first of those teams never could find a dragon to

slay, although they did spend a lot of time looking. Eventually they formed a company that trained dragon slayers.

The second team did indeed meet the dragon. Unfortunately, this was because the dragon found them first. They tried to reason with the dragon, but only one of them could remember how to speak Dragonese, since it was a year since the students had taken Introduction to Dragonese. However, the graduate who had been good at speaking Dragonese had been the only student to fail the negotiation course. He succeeded in annoying the dragon greatly by demanding that he not breathe fire while they negotiated. The dragon ate all four members of the team.

The third team did indeed find and do battle with the dragon. Unfortunately, they had never really tried to fight a dragon before, and the dragon was much faster and its flame much hotter than any of them had anticipated. The dragon chased one of the members of the team off of a cliff and then proceeded to melt first the weapons and then the body of a second team member. The last two team members had no idea how they to engage in a battle between the just the two of them and the dragon, so they negotiated a truce. They are now doing public relations for the dragon.

The SCC

What went wrong in the dragon slaying curriculum that the faculty worked so hard to build? For one thing, there was no actual dragon slaying in it. Teaching actual dragon slaying can be very difficult because, among other things, it requires access to an actual dragon. But this was not the only problem. There are other issues that were not addressed by this curriculum. For example, where was the course in teamwork? Where was the course in planning a dragon attack? Where was the course in protecting oneself from a dragon, or enticing a dragon into entering into a vulnerable situation?

The idea behind the story-centered curriculum (SCC) is that a good curriculum should tell a story. That story should be one in which the student plays one or more roles. Those roles should be roles that normally come up in such a story. The curriculum is intended to

teach the student how to do something. The roles should be ones that the graduate of such a program might actually do in real life or might actually need to know about (possibly because he is likely to manage or work with someone who performs that role.)

Stories have been at the center of human consciousness for a long time. People tell stories, and the stories they tell shape who they are. People hear stories and remember those that resonate deeply with them. And, people live stories. The stories they live become part of them in a deep way. While we may easily forget everything about a course we took in college, we can hardly forget the roles we have played in real life experiences, especially when those roles went on for a long time and had emotional impact on us. The central argument here is that good education requires good stories — not solely stories that one is told, however. A good education relies upon the creation of stories that a student can participate in and feel deeply about. This means that those stories must take a significant amount of time, that they must include others who are playing roles the student will have to deal with in later life, and that the roles the student plays in the stories must relate to the future roles that the student intends to play in real life.

The SCC is inherently goal-based. The goals are those that a student has for entering school and following a curriculum in the first place. The goals must be those that a student has or might have upon entering a program, typically ones that sound like future job aspirations.

The SCC is also inherently activity-based. The activities that comprise the SCC must relate to long-term goals that the student has and must constitute the tasks that people actually perform in the roles that the student hopes to play in real life. Thus, if the student wants to be an X and in real life anyone who is an X occasionally does Y, then critical in the SCC for X-ing would be making sure that the student did Y. Any story that drove the curriculum to train X-ers would have to make sure that activity Y was performed in such a way and with such frequency as to make sure that the student became proficient at it.

There would also be activities in an SCC that would be less central, Z-ing , ones that a future X-er would need to understand but not

regularly perform. Situations that called upon the student to deal with issues about Z-ing would need to come up in the SCC but would not be central to it. These we call events.

Thus an SCC is made up of a set of real-life types of activities that comprise the bulk of the work done by the student, and a set of events that occasionally interrupt or augment those activities.

Building the SCC

In order to understand how to build an SCC we need to understand its components. To do this, we return to dragon slaying. What would building a good dragon slaying curriculum entail?

- Step 1. Determine the career-goals of the student.
- Step 2. Determine the key activities that comprise the life of a person who has achieved the goal to which the student aspires.
- Step 3. Determine what key events might occur in the life of a person who has achieved such a goal.
- Step 4. Come up with a story that all the above fit neatly within.
- Step 5. Determine what things a person entering the curriculum would need to know that are not particularly part of the story *per se*.

The story would be about a particular attempt to slay a particular dragon. The student would be part of a dragon slaying team, which would prepare for the big event by learning to do small parts of the overall task and by practicing on simulated versions of the task that have been simplified in critical ways. In this way, when a student attempts to slay an actual dragon for the first time, he will be part of a team of student dragon slayers advised by more experienced dragon slayers.

During the simulated voyage, obstacles would be thrown the student's way that he may not have anticipated. These obstacles could be overcome by good reasoning and planning with the help of a tutor, by working out a plan with the student's team that divides up the roles, by special purpose just-in-time courses that have been

prepared to help students who have encountered obstacles, or by the faculty suspending time and going back to remedy any holes in a student's knowledge. When a student finally slays the simulated dragon, he is certified a Master Dragon Slayer and is ready to encounter real dragons on his own.

A story-centered curriculum therefore starts with the determination of what the story will be. Then, within the context of that story, faculty decide upon simplified mini-voyages and sub-tasks. The faculty must decide which courses exist apart from the story and which of those are prerequisites, just-in-time, or parallel courses that enhance the student's ability to play his role in the story but are not part of the story itself. The faculty must determine where mentored planning and reasoning courses fit in, and they must select obstacles in the simulated voyage that might present an opportunity to teach something of significance that is not directly part of the story. Finally, the faculty must determine not only the storyline, but also the denouement: that moment when the student knows he has won.

When an integrated story has been created, it is the job of the course designers to determine a set of tasks to be accomplished, and to decide how students are to be taught to do the assigned tasks. This is where the traditional notions of teaching get changed.

As an example, we have looked into transforming the E-Commerce Master's program at a leading university. This program is offered jointly between the business school and the School of Computer Science. It currently is offered as a twelve month program broken down into six mini-semesters. The structure of that program is as follows (with possible electives filled in):

First Mini

Core	Java 2
Core	Communications and Networking 3
Elective	Ecommerce Management 4
Elective	Ecommerce Technology

Second Mini

Core	The Internet 2
Core	Web based Info Architecture 3

Elective Financial Accounting 4
Elective Managerial Economics

Third Mini

Core Database Management 2
Core Applied Data Analysis 3
Elective Marketing Fundamentals 4
Elective Electronic Payment Systems

Fourth Mini

Core Entrepreneurship 2
Core Computer Security 3
Core System and Project Engineering 4
Core Intro HCI and UI programming

Fifth Mini

Elective Supply Chain Management 2
Project I (18 units)

Sixth Mini

Elective Ecommerce Law and Regulation 2
Project II (18 units)

In working with the university faculty, we have been able to create an alternative to the above program. In order to do this, we first established the career expectations that a graduate of this program could be expected to have. These were assumed to be the following:

- **Run e-commerce company**
- **Transform old company to new e-commerce company**
- **E-commerce consultant**
- **Manage application development in an e-commerce company**

Using the ideas of learning by doing, goal-based scenarios, and a story-centered curriculum, the faculty came up with idea that the student would be employed as a consultant to Shmamazon.com, a company selling various retail items on the web. His job would be to fix Shmamazon by creating a plan to achieve profitability in one year. He would work on both long-term objectives and day-to-day operations. He would have to cope with various external events that might occur, such as security breaches and law suits. He would have to create new user interfaces that captured user requirements, respond to new technologies implemented by competitors, implement B2B payments, deal with scalability issues involved in a plan to

expand to China, and so on. The curriculum would be focused on key activities such as:

- **Activity 1: Determining why we aren't profitable**
- **Activity 2: Developing a profitability strategy**
- **Activity 3: Developing a board determined (really faculty determined) strategy and implementation plan**
- **Activity 4: Introducing new technology**
- **Activity 5: Implementing some aspect of that new technology**

Sub-tasks in the curriculum would include:

- **Decide on strategy**
- **Create marketing plan**
- **Create financial plan**
- **Design supply chain**
- **Manage the Company**
- **Assign people**
- **Choose technology**
- **Advise company**
- **Analyze business problem**
- **Find technology solutions**
- **Manage implementation**
- **Define requirements**
- **Create implementation plan**
- **Build system**
- **Evaluate/Create idea**
- **Create value proposition**

The Story-Centered Curriculum in Practice

Students would work in groups of three or four. They would be given detailed information about the company they were working for together with detailed assignments. They would, with the help of an advisor, establish roles to play and timetables for the completion of the various assignments. Supporting materials would be made available and faculty and mentors would be able to answer questions and point students in the right direction.

The simple idea here is that it is the job of the faculty to set up a reasonable story and a set of goal-based scenarios within that story, and to be available to help as needed. It is *not* the job of the faculty to

provide information that is readily available elsewhere. Thus, the faculty need not teach how to create a financial plan since this has been written about in many places. The job of the faculty is to look at the financial plans created by the students and to help them make them right.

This is an iterative process that is at the heart of real teaching utilizing one-on-one tutoring. There is no place for either classes or lectures in this curriculum. There are, however, some courses that stand alone. For example, it was determined by the e-Commerce faculty that students should know how to program in JAVA and should know how to build a web site. Such topics would be offered as stand-alone courses, to be taken in parallel with the primary story. Those courses would be web-mentored on-line courses taken at the convenience of the student. (These courses already exist and were built by Cognitive Arts for Columbia University.)

The SCC can be presented either entirely on-line, entirely on the ground in a traditional school setting, or in a mixture of the two styles. The main types of face-to-face interactions in the “on the ground” version are within the student teams who meet as a group, in tutoring sessions including a group and a tutor, and in the faculty supervision and evaluation of the group’s progress. All of these can also be done on-line. An argument can be made for using a mix of the two to allow face-to-face interactions when possible and still take advantage of the opportunities offered by having the best and brightest mentors available to do the interactions at a distance.

Why Master’s / What Master’s

Master’s degrees offer a great opportunity in the university world. They are the stepchild of the faculty and the joy of the administration. The administration of a university loves master’s degrees. In general universities do not hire faculty especially for a master’s program. They simply utilize existing faculty. Since master’s students are usually self-funded, this means that master’s programs are very profitable for universities, which is why administrators love them.

Faculty dislike master's programs for a number of reasons. For example, they have the potential of adding to the teaching load of the faculty. When new courses are not added to comprise a master's program, then new students enter the undergraduate and PhD programs adding more work and quite often adding students who are perceived to be of lesser quality or less value to a faculty member. Faculty members prefer the potentially brilliant PhD student who will be a protégé to the student who simply wants to earn a living in his field.

For these reasons and more, there is a great opportunity in the field of building on-line master's degrees. Universities want to offer them, and faculty would not be upset by someone else doing the bulk of the work. The SCC master's keeps the faculty in control of their own degree programs, so any faculty objection to loss of control is negated. As long as the revenue produced is more than the cost of production (estimated to be \$750K per master's program) and the cost of operation (estimated to be \$150K per running), there is money to be made. More than 40 students (in a private university and at private tuition rates) will justify the expense.

Not every master's degree program can be done using the SCC method. For example, an MA in English would not be a suitable candidate for the SCC. The SCC is designed to create a story that should be quite like the story that a graduate will live after graduation. The design of the SCC starts with the determination of the career goals of the student. While many master's degrees serve well-defined career goals for students, many do not. An MA in English is a collection of courses and probably should remain so. There is no clearly agreed upon career goal for students. On the other end of the spectrum an MBA would seem like an ideal candidate for the SCC. To some extent it is, but doing it right would require reconsidering the various paths that a newly minted MBA might take. For example, if the MBA candidate is intent on becoming a marketing person, a marketing SCC could be designed. Certainly this would bear some relationship to existing MBA programs, but its intent would not be the providing of a smorgasbord of courses in business but rather the intent would be to focus the graduate towards his future life in marketing.

In other words, the more a clear career goal can be established for the graduate, the more appropriate an SCC master's program would be. However, it should be clear that an SCC is not appropriate to every career-oriented master's program. The SCC is really at its core an attempt to change listening into doing. Some master's programs are already so doing oriented that an on-line SCC would simply be a mistake. A program that focused on laboratory work or work with machinery, for example, would still need that equipment, and students would be poorly served on-line. A live on the ground SCC would still work in such environments, but the on-line version would be severely hampered.

Other Venues for the SCC

Where else would the SCC work? One obvious answer is in high school. Of course, high schools are pretty impervious to change, but there are some virtual high schools being started out there in various states, so with them in mind, I offer the following ideas.

I was asked, by an otherwise erudite fellow who ought to know better, after he read some of what has preceded this paragraph: "DO YOU WANT TO SAY: this method can work for standard curricular content, e.g., science, math, social studies, language arts?"

No, no, a thousand times no. It is the curriculum that is the problem. Why is there a science curriculum? What purpose does it serve? Why is there a mathematics curriculum? Do students remember the trigonometry they have learned even a few weeks after having passed the final exam?

The SCC is about the elimination of courses in favor of curricula that tell a meaningful story that the student is likely to engage in again after graduation. Now, many high school students are simply preparing for college, and thus one could argue that they take trigonometry in order to take college math. The fact that this isn't really true may not matter in this case. What is important is that we identify some stories that the student might want to live in high school because they may come up again. Here are some examples: running a small business, working on a political campaign, building a house,

designing a city, running an organization, being a parent, creating an invention, making a discovery, convincing an organization to do things differently. Now, these are not normally thought of as courses in high school. However, looked at closely, they would entail calculating, planning, reasoning, dealing with societal issues, basic psychology, basic economics, dealing with historical issues, communicating in written and oral fashion, teamwork, research and nearly every other subject normally taught in high school (and quite a few that are not.)

The SCC idea works perfectly in high school. Whether high schools are ready to adopt it is another question. Certainly teachers would be well qualified to do the mentoring and judgement of work that is required in the SCC. They could also help to build the story. They would need to be released from standard teaching duties in order to do this, but it is not a stretch to imagine that many teachers would want to and would be well qualified to participate in such an endeavor.

The SCC in the Business World

What about business? While the business world madly embraces e-learning, they have also embraced the idea that e-learning should be cheap. This of course, follows the general idea that all school should be cheap, which is why we have the ineffective system that is in place world-wide today. Lectures are, after all, nothing if not good value for money from a university's point of view, as long as the classroom is well populated by paying students.

While business has not copied the lecture, it has copied nearly everything else from school when it does corporate training. Business now loves e-learning because they have embraced the idea that they need to move their existing training onto the web because it would save money and allow training to occur anytime anywhere. There is nothing wrong with the desire to save money, but putting training in a book would save money as well. The reason training has been held in classrooms is that people believed that classroom training worked better than simply asking employees to read a training manual. The

goal of classrooms has been to provide a better learning experience than a manual could provide.

When books were moved to classrooms, they were not simply read to the assembled students. (Actually they were at the beginning, hence the word *lecture*.) New teaching methodologies evolved that were more appropriate to classrooms and books became supplemental materials for teachers. But, Different media require different methods.

Will the SCC work as one of those new web-oriented methods? It should. But to make it work, businesses also have to abandon the idea that training means providing courses to employees.

The advantage of the SCC is that it considerably cheaper to build than a full-scale simulation (perhaps twenty times cheaper.) The disadvantage is that it requires mentors who are available to tutor students. This is not such a problem for schools but it could be a problem for businesses. Assuming that it is not a problem for a given business, how would they go about taking advantage of the SCC?

The first problem is the same as exists with universities. They need to abandon the notion of a course. This shouldn't be hard to do because businesses typically do not have faculties who have vested interests in particular courses. However, once one thinks in terms of courses, it is often difficult to get into a different mindset. Many corporations already have the kind of courses that translate easily into an SCC, however. Consulting companies, for example, often train new hires with immersion courses. These courses sometimes do simulate aspects of the job the trainee will eventually perform. In an SCC the entire story would be more fleshed out and typically trainees would train for a role higher than the one they about to begin because in the long run it easier to understand ones role that way. Simply put, the SCC encompasses more than one typical course, and thus would be appropriate in a business environment where employees are trained to perform roles in an organization that might entail learning many different skills.

Summary

The SCC will work in any complex learning environment as long as there are mentors available and realistic roles to learn. A great deal of work is required to build a realistic environment. This environment would be on the web and can be used in a live on the ground school or on-line. In either case, teamwork and mentoring as well as the successive evaluation of work products that are the result of activities are the *sine qua non* of the SCC. It is relatively cheap to build because there is no teaching in what is built. Teachers still teach, although they would do so socratically on an as-needed basis. Work is still evaluated by teachers. What teachers don't do is stand up and talk, nor do they tell people how to do things before they try to do them. Instead, they point students towards help (written or with tutors). And typically teachers do not design the SCC (although they could with sufficient training). The design of the SCC would have to be done by experienced designers who have worked extensively with the concept of goal-based scenarios.