

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Contents

Teaching Responsibilities3
 The Department3
 Degree Programs3
 Department Goals3
 Courses4
 Course Coordination.....5
Teaching Philosophy5
Teaching Methodology.....7
 There’s nothing to it but to do it7
 A day in the life.....7
 Introduce new material.....8
 Connect new material to prior coursework8
 Give a lecture or handouts to explain the new material.....8
 Lead an activity, demonstration or discussion of the new material8
 Guided problem solving using the new material8
 Homework assignments expand on work in class.....9
 Assess student learning frequently9
 Hands-on projects9
 One-on-One interaction 10
Course Syllabi 10
 Syllabus as production calendar..... 10
 Syllabus as contract 11

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Assignments 11

Teaching Effectiveness 11

 Peer Assessment of Teaching 12

 Excerpts from observations 12

 Student Assessment of Teaching – recent summary scores 13

 Selected student comments 13

Teaching Improvement Activities 14

Future Teaching Goals 14

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Teaching Responsibilities

When I joined the department in the fall of 2009, I took on the responsibility for the courses in what we call our Fabrication Track. These courses emphasize tool skills, knowledge of materials, and building techniques as well as planning and budgeting for a project typical for a modern live event. These courses feature prominently in the department's Scenery Construction certificate program, and in the Entertainment Technology degree program they culminate in the capstone course Technical Direction.

In addition to my own course load, which is detailed below, I coordinate with the adjunct faculty teaching courses in the Fabrication Track. I am responsible for maintaining consistency and continuity throughout the track, as well as maintaining and updating the curriculum.

I am also responsible for the department's Scene Shop and Welding Lab, lab spaces used extensively by the department for teaching fabrication skills as well as for lab components of the Technical Production class and for building and painting scenery for Theatreworks productions.

The Department

Degree Programs

The Entertainment Technology department is home to two Baccalaureate degree programs (Entertainment Technology and Emerging Media Technology) and six certificate programs (Lighting Systems Technology, Scenery Construction, Show Control, Sound Systems Technology, Interactive Media Technologies and Video Production). See [Catalog](#).

Department Goals

As stated in the 2013-2014 Catalog, the Entertainment Technology department "seeks to provide highly competent graduates for careers as scenery, lighting, sound, video and show control technicians, technical and production managers, equipment marketing representatives and personnel for distributors and rental houses in the entertainment industry. The program offers additional career options for technicians in the allied fields of film and television production; architectural lighting; display design and construction; trade show exhibitions; club, casino and theme-park operations and all related performing arts production. Students desiring careers as designers or content creators can also benefit from the integrated technical and production components, and the degree provides a compelling stepping stone to more advanced work at the graduate level."

Our students have a wide range of prior experience when they enter our program; some students have worked extensively on technical production in high school, some are working professionals, and some students have no prior experience whatsoever. Our curriculum needs to be flexible enough to accommodate all of these different groups while still achieving the department goal of making all of our students ready to enter (or re-enter) the workforce with relevant and valuable skills.

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Courses

While I am responsible for the entire fabrication track, the courses I teach are listed below. When I was hired in 2009, the department wanted to update these courses to include more modern fabrication techniques and production practices such as CNC machining, automated machinery and effects, and more metal-working and welding. My background in the entertainment industry, which includes traditional stagecraft skills such as carpentry, rigging and welding as well as more modern technologies in CNC fabrication, stage machinery and stage automation, makes me ideally suited for this task.

I have taught the following courses. Students in these courses have usually completed at least 30 credits, with most students taking these classes in their third or fourth year.

- a. Advanced Scenery Construction – ENT 2210 (3 credits, 16 students)
 - i. This is our second Scenery Construction course. It is a combination of lectures and labs. It is designed to take our students from competency to proficiency in working in the scene shop. Topics include standard construction methods, materials, carpentry tools, carpentry techniques, and project planning.
- b. Theatrical Drafting – ENT 2200 (3 credits, 16 students)
 - i. This is the second of three drafting courses in the major. Where the first course focuses on drafting fundamentals (AutoCAD skills, orthographic projection), this course focuses on theatrical drafting conventions (elevations, sections, ground plans, blocks, customizing AutoCAD, using templates and styles, drawing organization).
- c. Basic Welding – ENT 2140 (2 credits, 16 students)
 - i. This course covers the basics of metalworking and welding. Students learn GMAW, FCAW and SMAW welding techniques as well as the use of metalworking tools and techniques common in theatrical shops (drill press, horizontal band saw, grinder, abrasive saw, cold saw, measuring and marking, work preparation).
- d. Technical Production 2-6 – ENT 2220, 3320, 3420, 4421, 4422 (2 credits each, 25 students)
 - i. This is a practical lab course in which students work to produce live events. I supervise the scenery construction crew. I prepare the working drawings and schedule of work to be done (assisted by students as their skill allows), and oversee their work in the shop and the theater.
- e. Stage Rigging and Machinery (1 section, Fall Semester, 10-16 students)
 - i. This course covers standard entertainment rigging materials, methods, and techniques used in theaters and arenas. The focus of the course is on load calculations and choosing components, with heavy hands-on lab components.
- f. Technical Direction – ENT 4410 (3 credits, 16 students, Spring semester of even years)
 - i. This is the capstone course for our Fabrication track. It focuses on planning and organization for large and complex scenery elements, building on material from earlier

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

courses. The course is taught using the “Inquiry-Based” model, which closely matches the conditions students will face when they graduate.

Course Coordination

As the course coordinator for the fabrication track, my primary goal has been to increase the amount of hands-on laboratory work for each student and to bring modern modeling and manufacturing processes into our classroom and laboratory work. I have worked with adjuncts in our department and with faculty and staff in the Architectural Technology and Mechanical Engineering Technology departments to do just that.

I worked with adjuncts teaching our ENT 1110 – Scenic Construction class to modify homework assignments and lab projects to give individual students more practice time in the scene shop. We accomplished this by changing some larger group projects (which make it easy for some students to dominate the lab work while others shy away) into smaller individual projects.

For ENT 2210 – Advanced Scenery Construction, I have worked with the Architectural Technology department to use their computer numerical control (CNC) router for class demonstrations and labs.

I have also incorporated CNC manufacturing and stage machinery into Theatreworks productions and into our ENT 2220 – Technical Production II-VI classes. The most recent project was a piece of stage machinery for Theatreworks’ productions of *Dylan*.

For *Dylan*, we used the CNC router to cut about 40 pieces of plywood, with a total of about 2,000 holes that needed to be precisely aligned with each other for a revolving stage. Entertainment technology students built and operated this machine at every stage of production. You can see technical production students assembling the pieces [here](#), and *Lighting & Sound America* wrote up our training and technical details in their July 2013 issue, seen [here](#). This type of project prepares our students for work in the modern entertainment industry, and gives them the opportunity to work on equipment that is not widely available at the undergraduate level.

Teaching Philosophy

I find that the people who are most successful in the entertainment business are the people who are able to understand or define a problem, generate multiple solutions to the problem and then evaluate those solutions to choose the most appropriate one. This work is usually conducted in a group, and always under hard deadlines.

The world of Entertainment Technology, like other technology fields, is constantly changing and evolving. It is my role to give the students the knowledge, skills, and methods to find their own solutions to the problems posed by work in the field

Define the problem

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

I strongly believe that in order to provide an answer, you must first have a good understanding of the question. To the entertainment technician, this means correctly interpreting a designer or director's vision for a performance, and how that vision fits within the parameters of the project. For example, two shows might both need a wall that is 16 feet wide and 8 feet tall. If Show A needs the wall to magically disappear at the end of act one and Show B needs the wall to break into pieces small enough to fit into a cargo van and light enough to be carried by one person, then the same wall cannot be used for both shows, even though they are the same size.

Students need to learn to analyze a problem to identify all of the requirements their solution needs to satisfy.

Generate multiple solutions

It has been my experience that your first idea is never your best idea. It is important for students to get in the habit of coming at a problem from many angles and perspectives.

Evaluate solutions to choose the most appropriate one

Once students have generated a few ideas, they need to compare those ideas to the parameters or requirements they identified when they defined the problem. It is important for me to encourage my students to look critically at their own work, so that they can learn to judge success or failure for themselves. They need to develop high personal standards and be able to realistically assess their own work.

There is always room for improvement

Part of looking critically at my own work is responding to student feedback and student performance to improve my teaching methods. My methods of work have changed over the years as I have learned new skills, and so should my teaching. After I give a lesson, I need to evaluate whether I was communicating effectively. If I have not been effective, I need to change that lesson, and if I have been effective I need to see if there are methods from that lesson which can be re-used in other classes.

I believe that it is important to encourage students to view their work the same way. They should leave my classes not feeling like they know everything they need to know, but feeling like they have a foundation of knowledge on which to build and the skills necessary to continue learning on their own.

Work in a group

Collaboration is at the heart of every live event. Only through the organized effort of a group of people do shows open. Our students need to be comfortable working in groups when they graduate. They should be able to present themselves professionally, be able to communicate their ideas, and be open to opinions that they may not share themselves. These interpersonal skills are valuable in every aspect of life, personal and professional.

Communication solves problems

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

I believe that it is communication that solves problems. When working on a creative team for a show, it is important that team members can communicate their ideas to each other, build consensus, and make sure that everyone shares a common goal. If that communication can't happen, then it is possible for people to work at cross purposes.

Meet deadlines

Students entering the entertainment industry will find that later is the same as never. Opening night is opening night, and the show must be complete on time or there will be a very unhappy audience to contend with. I believe it is essential that students develop the discipline and time management skills necessary to complete their work on time while still in school. If they wait to develop a strong work ethic until after graduation, it will be too late.

There's nothing to it but to do it

I believe that the only way to truly learn these skills is through extensive, rigorous, hands-on practice. Students need to use tools to understand tools; they need to build things in order to understand building. They need to feel the difference between choosing a light building material and a heavy one. I believe that by tying practical work to theory both practice and comprehension of theory is improved.

Teaching Methodology

There's nothing to it but to do it

In general, I design coursework to get students to actively use the skills they learn in class.

A day in the life

A typical day in one of my classes will follow this pattern. Depending on length of lecture, this may actually spread over two class periods (see [Class Outlines](#)):

- Introduce new theory/material
- Connect the new material to prior coursework
- Lecture/handouts to explain new material
- Activity/demonstration/discussion of new material
- Guided problem-solving using the new material

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

- Homework assignment that expands upon work in class
- In next class or when assignment is due – class discussion of student experience: what worked, what didn't work, what was hard or easy, discuss choices that students made

Introduce new material

When I introduce the topic for a new day, I like to give the class a verbal outline of where we will end up by the end of the lesson. I think this helps organize the classwork a little bit, and gives the students a sense of what the lecture is all about. For example, in my Advanced Scenery Construction class, when we start the class about flat framing techniques, I lay out ahead of time that we will be covering rectangular flats, flats with door and window openings, and how to assemble a wall out of individual flats.

Connect new material to prior coursework

None of our work is done in a vacuum. I think it is important for students to see how what they are learning fits in with the rest of their classwork. For example, in the Advanced Scenery Construction class I mentioned earlier, I explain that building a flat with an opening follows rules that are based on methods they have already learned and mastered for building simple rectangular flats. By explaining how they have already mastered portions of the new material, it makes it less intimidating.

Give a lecture or handouts to explain the new material

I introduce new material with a brief lecture or a simple handout. The lecture and handout will explain the general concepts of the material. I don't like the lecture portion to be too long; just long enough to give the students enough background to actively participate in the activity, demonstration or discussion to follow.

In Advanced Scenery Construction class, I hand out sample construction drawings for the flat construction methods we discuss in class. See [Flat Construction Handouts](#).

Lead an activity, demonstration or discussion of the new material

To reinforce my lectures, I like to include an activity that lets students experience the material in a different way. I like to switch one of the senses I engage in the activity or demonstration. For example, in the Advanced Scenery Construction class on flat construction, I begin by lecturing and drawing on the board, which engages their hearing and sight. For the demonstration, we walk through the stage or the shop where we can see some actual flats in place. This gets students to move their bodies around and they can connect something they have been hearing and seeing with an actual object that they can touch.

Guided problem solving using the new material

To get students to engage with new material actively, I will guide an in-class exercise that uses the new material. In the Advanced Scenery Construction class on flat construction I do this in two ways. First, while we are still

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

looking at actual flats, I ask the students to analyze the choices that were made when the piece was built. They need to look at the piece and identify which construction methods were used and why. I also ask them to explain why that method is or is not the most appropriate method for the flat in question.

Second, we will return to the classroom and I will draw the outline of a flat with an opening on the board and ask the students to sketch in the framing together.

Homework assignments expand on work in class

I design my homework assignments to closely match work that students have done in class, and to match common industry practice that the students will encounter when they enter the workforce. See [Cut List Homework](#)

Assess student learning frequently

I prefer that students hand something in and get something back every week at least. This lets me check in with the students and see what they are learning, what they are struggling with and where I need to improve my communications. It also ensures that students are getting regular feedback on their performance.

In Advanced Scenery Construction (ENT 2210) and Theatrical Drafting (ENT 2200), which are both the second in a series of courses, I begin each semester with a diagnostic test to see what information students have retained from earlier coursework. See Advanced Scenery Construction [diagnostic test](#).

I use daily quizzes as a formative assessment tool. In Advanced Scenery Construction those quizzes always cover material from the previous lecture so I can quickly identify which concepts need to be repeated or reviewed before we move on to a new topic. At the end of a lecture, I can get students to think about what the important parts of the lesson were by asking “what do you think will be on the quiz?” This gets them talking about the lesson, thinking about how to communicate the information, and gives me some quick, informal feedback about whether or not I’m clearly communicating which points are the most important.

It is my policy to give back graded homework in a timely and predictable way so that students can see how they are doing and modify their future work habits. It would be unfair for me to penalize a student for using an incorrect drafting method for several assignments if I never handed back a corrected assignment that brought the error to the student’s attention.

Hands-on projects

I believe that hands-on projects are some of the most valuable for students. Not only do they reinforce lecture material with muscle memory and tactile sensations, they teach skills required for success in the entertainment industry that cannot be taught in any other way. The only way to learn to tie knots, for example, is to grab a piece of rope and practice.

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

The hands-on projects I use range from simple tasks that the students must learn by repeating, like the knot-tying exercise mentioned above, to more complex assignments that require students to combine theoretical skills learned in the classroom with manual skills learned in the lab. One such project is the Jig Project from Advanced Scenery Construction (see [here](#)). This project requires students to identify a task that is difficult or impossible with one of our scene shop tools, and then research or design a jig that helps a tool user to perform the task. Once their design is approved, they must build a working model and demonstrate its use to the class.

One-on-One interaction

I design my classes to allow for a lot of one-on-one interactions with the students. This allows me to address individual concerns they have and gives me real-time feedback on what they are learning and where they need more instruction. The most obvious example of this is Basic Welding class. After a brief introduction when I introduce a new method or machine, students spend most of their time practicing on their own projects. While the students are working, I circulate through the shop to check on their progress and give advice. If I notice that many students are having the same difficulties, I will address that topic with the entire class during the next class meeting.

Course Syllabi

I consider the syllabus to be both a production calendar for the course and a contract between me and the students. It needs to lay out the objectives of the course, give the students an idea of what material will be covered and also clearly explain what is expected of them and how they will be evaluated.

See [sample syllabi](#).

Syllabus as production calendar

A syllabus for a course is like a production calendar for a show. When making a production calendar, you always start at opening night and work backwards, filling in each prerequisite step. This lets a production team identify tight spots in a schedule, set deadlines for projects and plan for a successful show. For a course, the student learning outcomes (SLO's) are 'opening night'. Starting from the SLO's, I work backwards to identify what lectures, activities and assignments need to proceed the conclusion of the course to ensure that the objectives are met. For example, in my Advanced Scenery Construction course one of the SLO's is: "students will be able to estimate materials, labor and tooling needed to complete a scenery project". Working from there it is clear that I need to include lessons and assignments that cover construction materials, labor and materials estimating, tool use and selection, and construction practices.

I also include a calendar of lecture topics and project due dates. This lets students see in advance where they crunch time will be, when they will need to be spending time working in the shop and develop the time management skills that are vital for success in the industry.

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Syllabus as contract

A syllabus is also like a contract or a project specification. I need to communicate what is expected of them, and what they can expect from me. This is where I outline attendance, academic integrity and other department policies. I always include my contact information and office hours.

I include the student learning outcomes, descriptions of each assignment and a breakdown of how each assignment or classroom activity will be weighed in their final grade.

Assignments

Just as I model my syllabi after industry documents, I like to think of my assignments as design drawings or project specifications. I am the client, and the students are contractors doing work for me. I need to clearly explain what the project is, what the timeline is and what their deliverables are.

On every assignment I include a verbal outline of the project that describes the project goals and how the project is related to work in the industry. Next are specific instructions on what the students need to do to complete the project and a checklist of tasks to accomplish and what they need to hand in to me.

Finally I always include a section on how they will be evaluated, so they have an idea of what I am looking for, and where they should focus their energies. For example, on some projects I am mostly asking them to follow a process or procedure and want to see evidence of how they worked; other projects are more presentational and I want them to consolidate their rough work into a more polished piece.

See [sample assignments](#).

Teaching Effectiveness

When I started teaching here in the fall of 2009, I had extensive experience teaching crew members, interns and peers in hands-on and one-on-one situations. I had little classroom experience to draw from, and was admittedly overwhelmed in my first semester when I had to translate those one-on-one experiences into classes that could be effective for 16 students at a time.

While there is always room for improvement, I believe that I have successfully adapted to this new environment. By combining lectures, examples and hands-on instruction, I have created an engaging and effective classroom environment that plays to my strengths as a teacher and a professional.

In my Advanced Scenery Class, I have had several students show significant improvement and had several 'aha!' moments. I have been proud to see several students begin to get regular work doing scenery on their own.

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

In my Stage Rigging and Machinery Class this semester, 8 out of 9 students showed improvement between the Mid-term Exam and the Final Exam.

Several of my students from Rigging and Technical Production displayed a strong enough grasp of the material and the appropriate professional demeanor that I felt confident recommending them to work on the strike call of *Notes from Underground* and on calls at Yale Repertory Theatre. They performed well in each case, doing a good job of representing themselves and the department.

Peer Assessment of Teaching

I have consistently received excellent marks from peer evaluations, and by engaging actively with the evaluation process I have also learned a lot from my more experienced peers. Comments ranging from classroom management ideas to different ways to organize lectures and activities have all found their way into my teaching, and I look forward to the observation every year to continue improving.

Excerpts from observations:

“The harder concepts which students were not able to grasp were well covered by studio-hands on tutoring session following the lecture. ... May consider hand drawing mini exercise relevant to corresponding software function.” – prof. Insook Choi, Spring 2010, Theatrical Drafting – ENT 2200

“He used the students’ choices from the quiz to create a learning experience. The quiz became the spring board into the topic of the day. He made sure the entire [class] gave input on the topic. And he made sure each student’s choice of material was discussed.” Prof. Sue Brandt, Fall 2009 Advanced Scenery Construction – ENT 2210

“Always made sure that students were able to ask questions, address concerns, and treated them with respect. If there was not time in the lesson then took notes to make sure that the question could be answered. He class felt comfortable with professor McCullough and were engaged and asked questions. They clearly respected him and had clear expectations about how they should behave.

...The presentation of all the pieces of hardware was well done, but there were a lot of different components. I am not sure if there is a handout, or other resource for students to review or study the important concepts.” Prof. David Smith, Fall 2012, Advanced Scenery Construction – ENT 2210

Teaching Portfolio
 John McCullough
 Entertainment Technology
 New York City College of Technology

Student Assessment of Teaching – recent summary scores

Criteria	Fall 2012 ENT 3410 (n=8)	Fall 2012 ENT 2210 (n=7)	Fall 2012 ENT Dept. Avg.	Spring 2012 ENT 3420 (n=6)	Spring 2012 ENT 4410 (n=5)	Fall 2012 ENT Dept. Avg
1. The instructor communicated in a way I understood.	4.63	4.86	4.60	4.67	4.60	4.56
2. The instructor held my interest and attention in class.	4.63	5.00	4.44	4.83	4.60	4.44
3. The instructor took the time to explain the material when students did not understand it.	4.63	4.86	4.60	4.83	4.80	4.62
4. Students were encouraged to ask questions and were given meaningful answers.	4.63	4.86	4.61	4.50	4.80	4.59
5. Students encouraged to express their own ideas and/or participate in class activities?	4.38	4.86	4.61	4.50	4.60	4.61
6. Treated students with courtesy and respect	4.75	4.86	4.75	4.83	4.40	4.69
7. Available to students for discussions or conferences?	4.75	4.86	4.55	4.67	4.60	4.52
8. Generally met class on time and held class to end of period?	4.75	4.86	4.73	4.67	4.80	4.63
9. Spoke clearly and could be heard in class?	4.63	5.00	4.70	4.83	4.80	4.64
10. Grading system for course clearly explained?	4.57	4.71	4.55	4.83	4.80	4.51
11. Overall teaching was effective?	4.57	5.00	4.54	4.83	4.80	4.53
Overall	4.63	4.88	4.61	4.73	4.67	4.58

Selected student comments:

“This was an incredible class. I would love to keep learning. This is an encouraging class.” Technical Production 1 – ENT 2120, Spring 2010

“Good teacher.” Technical Production 1 – ENT 2120, Spring 2010

“Best class all semester.” Student from Theatrical Drafting – ENT 2200, Spring 2010

“Excellent manner of breaking down complex topics. John is extremely approachable. I have asked for help in auditorium, office and shop. John always makes time for conferences.” Advanced Scenery Construction, Fall 2012

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Teaching Improvement Activities

Work outside the College

In order to stay current with industry practice, I continue to work professionally. The details of this work can be found elsewhere, but here is a brief summary of my professional work:

Technical Director, NY Stage and Film, Summers of 2009-2014

Technical Supervisor, Yale Repertory Theatre, *Notes from Underground*, Fall 2010

Shop Class Instructor (temporary), Yale School of Drama, Fall 2010

See my PAR for more complete picture of my work history.

Professional Organizations

I am an active member of the United States Institute of Theatre Technology (USITT www.usitt.org), a professional organization that “connects performing arts design and technology communities to ensure a vibrant dialog among practitioners, educators, and students.” I am the Chair of the New York Area Section of USITT, which works to serve student and early-career members by connecting them to mentors and resources in New York. I attend the annual conference and stage expo, and serve as an adjudicator and editor for the Tech Expo. The Tech Expo is a biennial competition that rewards ingenuity in problem-solving for productions. By attending workshops and discussions hosted by the Education and Technical Production commissions I can stay current with developments in the industry and the theatre education community.

College Programs

For two years, I participated in the Living Lab grant, first as a Fourth-year Fellow, then as a Fifth-year Fellow. My work in this grant allowed me to completely redesign my Technical Direction course. This course redesign was very successful, improving attendance, participation, and engagement with students as well completion of assignments. You can see my Fourth-year Fellow presentation [here](#), and my OpenLab site [here](#).

Future Teaching Goals

In the long term, I want to improve state of the art, and to do that I must improve the state of education. The entertainment industry is evolving rapidly, but most undergraduate theatre departments are stuck teaching technology and methods that would be familiar to most stagehands of the 1960's and 70's. In order to improve the state of the art, we need students entering the workforce with modern skills and modern knowledge.

Teaching Portfolio
John McCullough
Entertainment Technology
New York City College of Technology

Towards that end, I want to modernize the Entertainment Technology department's fabrication track. I want to integrate more CNC (computer numeric control) technology to our class and production work. I want to add classes in machinery and automation to complement the excellent curriculum we already have in show control.

In the short term, I would like to reinforce connections between classes for students. Making explicit connections to pre-requisite courses and general education concepts can help students connect information they already know with the new information they learn. This effort also requires training all of our faculty, especially adjuncts, how their courses fit into the big picture in the department and how they can best support the work going on in other courses.