

ACETS Exemplar 13

Neonatal Resuscitation 101

Colin Melville

Keele University

ACETS Exemplar 13: Baseline Survey

1	Teacher/academic's name	Colin Melville
2	Teacher/academic's position	Senior Lecturer in Paediatrics
3	Teacher/academic's institution	Keele University
4	Range of subjects taught	Paediatrics, medical education
5	Contact information	
6	Principal interest	both
7	ACETS Officer	Dawn Leeder
8	Date of survey	10/7/2003
9	Do you know how to make web pages?	a lot
10	Have you used the web in your teaching?	a lot
11	Do you use anything that you would consider a 'learning object' in your teaching?	a lot
12	How would you rate your own computing skills against those of your colleagues?	expert
13	How would you rate your own teaching skills against those of your colleagues?	expert
14	How would you rate your own use of CAL against those of your colleagues?	expert
15	How much relevant staff development and training is available?	a little
16	How much relevant staff development have you actually made use of?	a lot
17	Do you have access to support in making electronic learning materials?	a little
18	Is this available as a free service?	completely
19	Have you made use of this support service before?	a lot
20	Would you expect that you would need to use this service to use learning objects in your teaching?	a little
21	Do you have a VLE (or equivalent) available to support your work?	yes
22	What is the system called (eg WebCT, or equivalent local system name)?	Own self-developed system using Zope/Python
23	Does it allow you to put teaching/learning materials online for your students	a lot
24	If so, do you do this or is it done centrally for you?	I do this
25	How easy is it for you to get teaching materials online?	quite easy
26	Do you have your own computer at work	yes
27	Do you use a computer at home for work	yes
28	What level of computer access do you think your students have in the institution and at home	average
29	How much of this is internet-enabled ?	a lot
30	How much teaching and learning materials are provided online for the students	a lot
31	To what degree do you expect the use of learning objects to enhance your teaching	a lot
32	To what degree do you expect the use of learning objects to enhance your students learning	a lot
33	To what degree do you expect the use of learning objects to make your work easier	a lot
34	Extra notes	

ACETS Exemplar 13: Interview

<i>Exemplifier</i>	Colin Melville
<i>Exemplar description</i>	"Neonatal Resuscitation 101" A course for teaching neo-natal resuscitation
<i>Interviewer</i>	Dawn Leeder
<i>Date and location of interview</i>	22 February 2005, Staffordshire General Hospital, Weston Road, Stafford, ST16 3SA
<i>Context of use</i>	One of the problems we have in the NHS is that we have large numbers of doctors, nurses, midwives who come in to the organisation on a regular basis. Each of them needs to acquire core skills rapidly and in a quality assured way, The problem is that in the old days we had small numbers of people rotating every six months or so, we've now got much larger numbers of people rotating up to four months and that means if you do face to face teaching of all the basic stuff it's just taking up too much senior doctor time and you have to find an alternative way to teach. So that's the context of this, it's at a very basic level, all SHO's should be able to do this within a week of starting the job
<i>How did you go about putting the exemplar together?</i>	The first thing is that in medicine there are a number of protocols or guidelines that have been developed and these are regularly updated and each tries to trump each in other in term a of the status of the organisation that has put them together. The latest neonatal guidelines were brought out in 2000/2001 and were called the International Consensus guidelines on Neonatal Resuscitation. The difficulty is that many guidelines are extremely dry in terms of reading; usually they consist of a single algorithm and that's the only illustration in the whole thing. When you're trying to teach practical skills there are lots of bits of visual information you're trying to get across and you're trying to make sure that at the end of the exposition people actually understand what you're trying to tell them, so the purpose of this is to expand and relate the guidelines to the underlying physiology in a way that basic learners can understand it.
<i>Was it hard to design and/or conceptualise your exemplar?</i>	Not particularly I suppose always I try to produce a map in my own mind about the structure of the course overall and then the branches that come off of that and once I've clarified that in my own mind it means I can communicate that clearly. There are always choices to be made but it's just a question of how do I make this as clear as possible to the learner who's coming to it for the first time.
<i>How did you approach this work? How quickly were you able to come up with the activity design?</i>	Most of the procedures and so on, didn't take long to get together because the core concepts, it was just a question of trying to present them in as clear and concise way as possible. It seems to me that when you're writing for the web it's essential that you distil things as much as possible rather than expand them in terms of having lots of texts. So trying to distil them, trying to find appropriate illustrations for them to clarify what you're trying to put across was where the difficulty lay.
<i>Was the kind of activity something the students were familiar with?</i>	They're familiar with the general area that's being covered, although I think few of them would have done courses quite like this. I think they're familiar with the sequence of presentation which is the same as in face-to-face teaching but they weren't familiar with having that online. So what I've tried to do is to do things in the same sequence as if I was teaching face to face and give the same asides and clinical relationships of the information.
<i>How did you find/identify your third-party materials?</i>	The first thing that I did was looked on all the various portals places like LTSN and after a lot of searching these sites, there were some images close to what I wanted but nothing precisely. I was looking for anatomical illustrations of procedures like intubation and also things like transition circulation. In the end having failed, I looked at various others ones I knew were out there and all of those drew a blank, so then I did a Google search and there was some useful information from that. There was an American lecture that had a few illustrations which I used. Apart from that I got a medical illustrator to take about 50 or 60 photographs which I used.
<i>Did you use ACETS listed links and sources?</i>	Yes, at first

<i>Did you look at/use JISC sources?</i>	No
<i>Did you use commercial sources?</i>	Not directly no, there was one illustration which was in a BMJ publication but it was actually taken from a publication by the Northern Neonatal Network, I didn't used it directly but it took it as the basis for developing an animation.
<i>Did you have to get clearance/permission to use the third party materials?</i>	One illustration is from third party materials. Also the data for the three graphs is third party. Since I haven't gone live with this course I haven't as yet got clearance but that's the next stage.
<i>Are you thinking about using these materials for any other purposes?</i>	No, not really but I think the animation, which I'm very pleased with could be taken out and used separately. I'm going to commission one other animation which is the intubation sequence and again that could be reused, a stand alone kind of thing. I've chunked each of these branches and I've done them as separate chapters so the idea is that someone could drop these into lectures. It's done in a very flexible way
<i>Was the exemplar easy to put together?</i>	I think that the ease of putting it together is a question on conceptual clarity; if you know what you're trying to do then it's relatively easy to put together. That's not to say that things didn't go through iterations. Obviously you start doing things and then think, if only I'd done this instead or in a different way. What I'm always trying to do is crystallise and clarify and simplify and you go through that sequence over and over again, so what you see is very straightforward and easy to do. In the end to wasn't difficult to put together.
<i>What tools did you use?</i>	I used [Adobe] Photoshop, all the photos are JPEGs, I used Excel to produce the graphs and gifs. We've done some stuff in [Macromedia] Flash as well. I took a few photos myself using the digital camera. The delivery is using a package called Moodle [an open-source Virtual Learning Environment]. Mind manager in producing a gif map with links. I went into a little HTML to tweak various bits.
<i>Did you get any help?</i>	I've usually taken advice rather than getting people to do it for me, I commissioned a developer to do the Flash animation and I had a photographer who took some pictures
<i>Were you pushing your skills in doing this?</i>	Yes, It's always one of the things I find most enjoyable when your ideas are running ahead of your technical abilities because that allows you to interact with people who have more expertise. I think I learned quite a lot from it
<i>Did you use pre-existing services/tools?</i>	Yeah Moodle, I've tried to use as much open source as I can.
<i>Did you engage with colleagues in your own working context?</i>	Yeah, particularly the medical illustrator and the flash developer, also there are times when you feel you're learning by putting this together, you're pushing your own knowledge for example I was asking a consultant anaesthetist about compliance codes because I wasn't clear that I understood them properly. Certainly with everything it's important that you get your conception clear and correct.
<i>Would that be the normal way you work?</i>	I do quite a lot of this sort of stuff so probably fairly similar to usual.
<i>Did you engage with the ACETS project or X4L programme?</i>	Well we interacted at the start of it but not on a regular basis I think we had a basic chat about it at ASME 2003 [medical education conference] and then chatted after that. [DL: we've been in regular contact by phone and email] Yeah – that's been very useful. We've also had a couple of face-to-face meetings.
<i>Did you engage with other external bodies?</i>	No, only through reading their literature but not directly.
<i>Was the exemplar easy to deliver/use?</i>	I've only delivered the pilot version so far. But so far, yes.

<i>Did it give pedagogical benefit</i>	Again, we've only done a pilot. But if you look at the amount of time people spent on the course and the relative rise in their score, and they got better scores the longer they spent on the course.
<i>Did it give economies of scale and efficiency</i>	Yes because with this people can study 24 hours a day 7 days a week, and I got a small number of queries from them. They also learned independently which is an advantage.
<i>Have you evaluated it?</i>	I've piloted it with a few people. I used a Canadian open source VLE called A-tutor to run a test. So I looked at the feedback on there. Eight people have left feedback.
<i>What was the form of the evaluation?</i>	A short online questionnaire.
<i>What was the result of the evaluation?</i>	The feedback was marked out of 20 and the lowest mark given was 19. So basically everyone thought it was great.
<i>Did it meet your expectations?</i>	Yes, definitely
<i>How easy was it to use third-party materials?</i>	Very easy to use but very difficult to find!
<i>Has this enhanced your teaching? In what way?</i>	I think the answer is that it hasn't yet been embedded as part of a local teacher, but reluctance by other members of the department is holding it back. There's still a belief that the only way to teach these subjects is face to face whereas my feeling is that in terms of the groundwork it's actually much better if people do it in a self paced kind of way and then it means face to face teaching can be focused on more detail.
<i>Has this enhanced your students learning? If so in what way?</i>	Yet to be determined
<i>How important was it that you were able to get hold of third party materials to use in your teaching?</i>	I thought it was very important to try and find them. It was more difficult than I thought.
<i>Has the use of learning objects made your work easier?</i>	What I wasn't able to find was a learning object out there that I could plug into this teaching process, I hope that somebody else can use this in their teaching
<i>Would you do it again?</i>	Oh yes I've got ongoing projects which are similar to this
<i>Was it hard to adapt materials or teaching practices to do this?</i>	I think the hardest thing is actually trying to convince yourself that a skill can be taught in this kind of way. I think there's a certain amount of the skill that can be taught in this way, say for example intubation you can teach the skill sequence what they should be looking out for, but you can't teach them how it feels. There has to be some supplementary teaching to take them to a practical level.
<i>Was it cost effective?</i>	It hasn't cost a huge amount to put together. I used students to do a lot of the work, if I'd used commercial people it would have cost a huge amount. It was costly in terms of time but it's this business of doing it as a hobby as much as anything else.
<i>Any other points or comments?</i>	I'm now getting involved with the RSPCH website so I think people are beginning to be interested in what I've been doing. I would like to do a second evaluation where I divided randomly SHO's [senior house officers – postgraduate trainee doctors] into some who got access to the course and others who didn't. Then I could determine how much the course was influencing students and how much in – house teaching was responsible for improvement

ACETS Exemplar 13: Reflective Diary

Stage one: resource discovery

Looking for illustrations/media to assist with developing a teaching package on neonatal resuscitation. Most are easily acquired: photos of equipment, photos of procedures being done on mannequins. Easier to get these done than to search for them. Difficulties with diseases; acquire these piecemeal as they become available. Have been trapping these for several years, so not a problem. Difficulty with intubation sequence. May be something along these lines available. Look particularly at anatomy sites via ACETS portal. disappointment, nil found.

Stage two: preparation

Need to start with a concept map, bird's eye view of the teaching programme. 1. Learning objectives 2. Basic science 3. Basic protocols 4. Basic procedures 5. Special cases RLOs particularly to address difficult conceptual issues and to supplement clinical experience, esp. things that occur rarely and may not be seen in brief attachment.

Stage three: creation

It's all going to be web-based. Need to have a framework for doing it. Could use Dreamweaver, but I've tried that and found maintenance a real issue. Could use Flash, but this would mean learning Flash. I've tried the 30d download and found it fairly opaque. Could use [Macromedia] Authorware, but don't have it. Let's try an open source VLE. ATutor looks good; standards based, accessibility compliant. Allows relatively easy editing. Can embed images (drag and drop after upload). Links are a bit clunky (grouped under resources). Navigation is good and customisable. Reasonably presented. Needs ACollab for forums.

Stage four: use and evaluation

Okay. All pages now written along with 40 self-test questions (repurposed from Quia). I'll do a pilot evaluation: all 11 subjects get access to course after doing 40 question pretest. Then give access to course. Then 40 question posttest. Post-pretest score gives gain from course. Also do satisfaction survey. Average satisfaction 19.5/20. Post-pre difference (paired t-test) $p < 0.001$. Looks as if we're onto something here.

Would be nice to have a larger experimental study to evaluate it's effectiveness. I'll need to contact a neonatologist locally to do this.

Stage five: reporting and closure

How was it? Overall very positive. Rate limiting steps have been technical and of course time! Evaluation has not been as extensive as I would have liked.

Finishing the exemplar; this has not been a problem.

Have I learned anything: a considerable amount, particularly about clarifying the design brief to avoid having to reinvent the wheel.

Would I use RLOs again? Yes. Major frustration has been seeing the potential of RLOs, but not finding the precise one that I want.

Advice to others: Use open source and standards-compliant software and resources whenever possible.

ACETS Exemplar 13: Semi-structured Learning Design Statement

<i>Learning Design Name:</i>	Neo-Natal Resuscitation
<i>Learning Designer(s):</i>	Colin Melville
<i>Institution(s):</i>	Staffordshire General Hospital
<i>Course Context(s):</i>	Basic Resuscitation/Refresher course for those involved with the resuscitation of children, open to hospital employees (doctors, junior doctors), midwives etc. Course is structured around NHS guidelines and revised as new guidelines emerge.
<i>ACETS exemplar ID:</i>	13
<i>LD period:</i>	Independent study, very practical
<i>LD duration:</i>	Approximately 1 month, web access remains open.

<i>In order to attain the following learning objective(s):</i>	<i>Specific learning objectives</i>	There are two: 1: to bring national guidelines to life 2: give students core competencies in life saving techniques		
	<i>General learning outcomes</i>	To offer students the basics of resuscitation using a more interactive method, 'Flash' and clinical photos as well as offering an understanding of why we do what we do, the rationale behind it, rather than just learning the 'theory' side of the procedure, used to supplement hands on training which occurs at a later date.		
<i>With prerequisite(s):</i>	Various groups can undertake, no specific pre requisite, can be either a refresher or the basics of.			
<i>Trigger(s):</i>	As new SHO (Senior House Officers) appear (approximately every 4-6 months) course is offered. Course begins with introduction of learning object.			
<i>The following persons/roles:</i>	<i>Name</i>	<i>Type (staff, student)</i>	<i>Description</i>	
	Student learner (SL)	Variety of SHO students	Junior doctors, nurses, clinical staff, mid wives etc.	
	Subject expert (SE)	Instructor	Colin Melville, as instructor, subject expert and practitioner	
<i>Perform:</i>	<i>Which roles?</i>	<i>Do what?</i>	<i>How?</i>	
<i>Learning activity(s):</i>	SL	Log onto website, navigate through activity LO , no specified order	Activity LO available in computer labs throughout hospital or from home access.	
<i>Support activity(s):</i>	N/a			
<i>Using environment(s) or scenario(s):</i>	All	Computers, in hospital labs, students home computer.	Students log onto website address	
	All	Moodle	As virtual learning environment	
<i>Using:</i>	<i>Which roles?</i>	<i>Use what?</i>	<i>To do what?</i>	
<i>Tool object(s):</i>	All	Internet-enabled computers	Students can navigate/scroll through individual chapters on-line.	
<i>Knowledge object(s):</i>	All	Activity LO containing diagrams, photos, etc. Variety of supplemental articles are linked to website address for further (but not mandatory) reading.	Students can navigate through individual chapters. At the end of each chapter, students can answer series of questions based on web activity.	
<i>Test object(s):</i>	SL	Reflective tests, questions used at end of each chapter. Pre and Post testing used to determine usefulness of activity LO . Most	Located at end of each chapter. Pre and post testing questions administered separately. 5 questions probed: usefulness of	

		students found useful and found easy to use. Instructor also can 'view' which students using and frequency of use.	activity, relevance, presentation, interest, and ease of use. All students showed improvement, amount of time spent correlated to improvement in understanding
<i>Search service(s):</i>	N/a		
<i>Communicate service(s):</i>	Moodle, instructor can log on periodically and respond to inquiries. Email available but did not use, few received. Most communication done face to face in workplace.		
<i>Announce service(s):</i>	N/a		
<i>Other elements or notes:</i>	Issue is that it is difficult to get students in the same place at the same time, the nature of their work has changed, shift work varies, we are forced to re-think ways to offer training.		