

2015-4

## Engagement With a Custom-Made Online System Designed to Support Undergraduate Work Placement

Claire E. McDonnell

*Technological University Dublin*, [claire.e.mcdonnell@tudublin.ie](mailto:claire.e.mcdonnell@tudublin.ie)

Francis Pedreschi

*Technological University Dublin*, [fran.pedreschi@tudublin.ie](mailto:fran.pedreschi@tudublin.ie)

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### Recommended Citation

McDonnell, C. & Pedreschi, F. (2015). Engagement With a Custom-Made Online System Designed to Support Undergraduate Work Placement. *Higher Education in Transformation Conference, Dublin, Ireland, 2015*, pp.319-328.

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## Engagement with a custom-made online system designed to support undergraduate work placement

Mc Donnell Claire, Pedreschi Fran

Dublin Institute of Technology

### Abstract<sup>63</sup>

*This paper describes an online system that was custom-made to allow BSc Optometry undergraduates to submit work electronically, while off-campus on work placement. One of the main aims of the system was to allow internal (college) supervisors to provide students with timely, formative feedback on work submitted. The system was piloted in academic year 2013-14 and an intrinsic case study was carried out to examine the engagement of the students, the external placement supervisors and the internal supervisors with the system. Engagement was gauged by examining all subjects' interaction with the system and by asking them to complete a post placement questionnaire. The results showed a high level of engagement from both the students and external supervisors but a lower level of engagement from the internal supervisors, in particular with regard to the provision of formative feedback. Possible reasons for the different levels of engagement are discussed and changes to be made to the system for academic year 2014-15 (based on the findings of the case study) are outlined.*

*Keywords:* work placement, practicum, online feedback, formative feedback, logbook

### Introduction

BSc Optometry undergraduates in the Dublin Institute of Technology (DIT) must complete a five month work placement in a community optician's practice at the end of their degree. During this placement they keep a logbook detailing every eye test they complete, (including a reflection on each test) and every spectacle dispense. They also have to submit five case reports and ten detailed dispensing records to their internal (college) supervisor. They must be signed off on 58 clinical competencies in their final year and at least half of these will be signed off while on placement. External placement supervisors also have to send a monthly report into DIT detailing their student's progress.

Until academic year 2013-14 almost all of these submissions and reports were paper based. The students submitted work to be assessed by internal supervisors at a point midway through and at the end of placement. This created problems whereby logbooks were mislaid, students missed deadlines because of difficulties getting submissions mailed on time, supervisors had large marking loads arriving simultaneously and it was not possible to give students formative feedback in order for them to improve their performance. Obliging external supervisors to mail in their monthly reports was an ongoing challenge.

In order to address the difficulties inherent with a paper-based system requiring delivery by standard mail, an online system was proposed. Initially it was envisaged that the system would allow the students to submit all of their work online, but eventually a much smaller scale system was devised. This system, known as the *online logbook*, facilitated submission of the students'

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<sup>63</sup> Correspondence concerning this article should be addressed to [claire.e.mcdonnell@dit.ie](mailto:claire.e.mcdonnell@dit.ie)

ten detailed dispensing records, allowed a record of competencies attained and outstanding to be stored online and facilitated external supervisors who wished to submit the students' monthly reports electronically. The dispensing records were included because an online form with validations was constructed and this obliged students to correct basic errors before being accepted for submission. Also, as students could now submit records as soon as they were ready, (instead of submitting all ten simultaneously), it was hoped that internal supervisors would be able to provide formative feedback for at least some submissions. The competencies were included because students could be asked to provide a record of these competencies at some point post-graduation if, for example, they were seeking registration as an optometrist in a jurisdiction other than Ireland and the UK and in the past, at least one student has lost their hard copy of their completed competencies. The monthly reports were included because internal supervisors were continuously obliged to remind external supervisors to mail these in to DIT. These reports were often received very late, potentially delaying ratification of a student's results in the placement module.

### **Development of an online system**

The initial aim of the dispensing record component of the online logbook was to oblige students to correct basic errors in their dispensing records before submission. This meant that any online form that the students completed had to be capable of validations. DIT's virtual learning environment, Blackboard, could not do this and so another system needed to be found. The system had to be easy to access and use, but it also had to be secure and capable of user authentication. Ideally it would also cost very little. With these requirements, it was decided to use Google App Script. It is free and Google maintain the servers and provide security. Provided users have a gmail account, they can be set up on the system and user authentication is then provided via the gmail account. All DIT staff and students' email addresses are gmail, so this seemed the most straightforward system to use. The external supervisors were given email address such as [optometryplacement1@gmail.com](mailto:optometryplacement1@gmail.com) to use. All the data was also stored on Google.

The user interface had the same appearance as the old hard copy dispensing records but most of the fields which had to be completed, either had dropdown menus (so that students could no longer fill in items that don't exist) or the fields had validations based on pre-specified parameters, or based on information completed in other fields. For example, all powers in a spectacle prescription must have a plus or minus sign in front of them and they must have two digits after the decimal place, so any powers entered that did not conform to this were flagged as red and when the student placed their cursor over the field, a message would display, explaining to the student what was expected in that field. In an example of one field depending on another field's information; if a student chose "bifocal" as the lens type then the system would also look for a measurement to be completed in the "segment height" field. Again if "segment height" was left blank, the field would be flagged as red and by placing the cursor over the field, the student would be made aware of the problem. (See figure one for an example of a digital form

that requires some amendments before final submission). A form could not be submitted unless all the information in the red fields had been amended and the fields had changed to green. In this way all the basic errors were already corrected before submission and therefore internal supervisors could focus on correcting the higher level learning. “We know that assessment drives learning and it is therefore imperative that workplace-based assessment focuses on important attributes rather than what is easiest to assess” (Multiprofessional faculty development, London Deanery, 2014).

### **Aim of the research**

The aim of this paper is to examine the results from the 2013-14 pilot of the online logbook to determine how the students, external supervisors and internal supervisors engaged with the logbook.

### **Methodology and Methods**

The methodology used was an intrinsic case study. An intrinsic case study is undertaken to facilitate a better understanding of a very specific case (Stake, 1995). This study looks at a specific group of students (final year BSc Optometry undergraduates) at a particular point in their degree programme (their five month work placement). The methods used were examination of the online logbooks themselves and questionnaires given to the three different subject groups.

### **Subjects**

There were twenty students on placement in 2013-14. Two of the students were placed in the University of Houston in the United States and because their competencies were being signed off by numerous different supervisors, they did not use the competency section of the online logbook. Their main supervisor was also not asked to complete the supervisor’s monthly reports online. (Not including the supervisor in the United States) there were 18 main, named, external supervisors for the remaining 18 students. (Some of these students would have also have had secondary supervisors working in the same practice as the main supervisor). There were six internal supervisors.

### **Literature Review**

The REAP (roadmap for employment – academic partnership) project is an Irish HEA (higher education authority) funded project which produced a report in 2011 entitled “work placement in third-level programmes”. In the course of their research into undergraduate work placement, the authors of the report obtained feedback from students, teaching staff and industry employers. Amongst concerns raised by teaching staff was; “a lack of dedicated resources to organise and monitor placement learning and the overall placement experience”. In a similar vein, employers reported dissatisfaction with what they perceived to be inconsistent placement structures. One of the themes that emerged from student focus groups was that, students felt that there was a lack of communication with their institution while on placement and they felt that academic staff should be more proactive in communicating with them. The report also found that in planning student placements, there is a place for information technology (IT) systems. IT

systems oblige staff to give greater consideration to the learning objectives for placement and how the achievement of these objectives might be evidenced. Lopez-Miguel et al (2011) examined the management of a placement within a post graduate vision science programme and they concluded that the use of a learning management system meant that all stakeholders (students, external supervisors and academics) were equally clear regarding what was expected of them and the authors felt that all students developed the same skills and that they were all evaluated in the same way. Kaider et al (2009) report that while face-to-face support for students is the ideal, complementary technological support can help with learner development. They also state that technology can accommodate the integration of learning while on industry placement with academic learning.

A lack of timely feedback is a well documented complaint of students in general and of those on work placement (Grove in Times Higher Education, 2014, REAP, 2011). It has been said that “it is impossible to overstate the role of effective feedback on students’ progress” (Ramsden, 1992, p. 193). As most academics visit students on placement only once (if at all) another mechanism for providing feedback must be developed.

## **Results**

### **Student Engagement**

The students were shown how to use the online logbook in December 2013 prior to commencing placement in the first week of January 2014. They had a 15 minute session in a computer room, during which, it was confirmed that they could log on to the logbook and they were shown how to complete an online dispensing record and a competency. In spite of the brevity of the session, in the post placement questionnaire all students indicated that they felt this session was adequate, for them to be able to use the system. The majority of students (61%) first logged on to the system in the first month of placement, with only three (15%) logging on just before the dispensing records submission due date (March 7<sup>th</sup>). The students were told that their ten dispensing records could only be submitted online and hard copy submissions would not be accepted. All 20 students submitted the ten records on time via the online logbook. In the post placement questionnaire only one student indicated that they would have preferred to submit their records by hard copy. Students were also asked if they felt there were any disadvantages to submitting the records online and of note; one student reported that they found it tiresome, that they could not submit a dispensing record until all the compulsory fields had been completed. This suggests that if they had been submitting via the old paper system, they would have made numerous omissions losing them marks, but this did not seem to be apparent to them. Another student reported that it took them 10-15 minutes to complete each record, but it is difficult to envisage that they would have been quicker (with the same level of accuracy) had they been completing paper records. When asked about the advantages of submitting online, only seven (out of 18) students recognised that the fact that, the online system forced them to correct basic errors was an advantage. All 18 students completed some competencies online.

### **External Supervisors**

13 of the 18 external supervisors attended a supervisor briefing day in DIT in December 2013. As part of this day they attended a session in a computer lab, where they were given specific email addresses such as [optometryplacement1@gmail.com](mailto:optometryplacement1@gmail.com) to use to access the online logbook and they were shown how to navigate the logbook. This session lasted about 30 minutes. There was only one supervisor who subsequently never engaged with the system. She reports that she tried to log in once and when she couldn't she immediately reverted to hard copy. A second supervisor signed off competencies online but completed all the monthly reports in hard copy. Of the remaining 16 supervisors, all of them signed off competencies online and all of them submitted at least four of the five monthly reports online. Of note here, is the fact that, at least one student was being supervised by two practitioners, one of whom refused to do anything via the online system, but whose co-supervisor simply signed off everything online on her behalf. Post placement, external supervisors were sent a link to an online questionnaire, to ascertain their opinion of the system but only six of them completed the questionnaire, so it is difficult to draw any conclusions on the basis of their responses. One question did ask whether the supervisor preferred the previous paper system or the newer online system. Only those who had supervised previously were eligible to answer this question and of the four responses received, three indicated their preference for the online system.

### **Internal Supervisors**

As mentioned, the initial drive behind the online logbook, was to allow internal supervisors to provide students with timely, formative feedback. However in this pilot, only two out of the six internal supervisors actually gave their students feedback via the online system. The other supervisors gave the students face-to-face summative feedback when the students were back in DIT, at a point midway through their placement, after all ten dispensing records had been submitted. It should be noted that a week before all ten dispensing records were due, six students had not submitted any records, therefore it would have been very difficult for their supervisors to provide these students with feedback. It was not possible to give all the internal supervisors a questionnaire regarding the online logbook because two of the six were covering maternity leave and had left by the time the placement was completed and another supervisor went on a career break. Two supervisors were interviewed briefly regarding the system. Both were asked if they felt this particular year's students' dispensing records were any better than previous years. One said "no" and the other felt that two out of their three students had produced better records. It is peculiar that one supervisor did not perceive any improvement, because in previous years all the students' records were littered with basic errors that simply could not occur with the validations and drop down menus inherent in the new online system and therefore this year's submissions must have been better than those submitted in previous years. Both interviewed supervisors preferred the online system to the old hard copy system. All the internal supervisors (including the two who came back from maternity leave) and the programme chair were happy to have the online logbook run again in academic year 2014-15.

### **Problems with and solutions for the online logbook**

Google closed down their free data storage system in November 2014 and so the data storage was moved to another free system called Parse. Logging in via a gmail account caused problems because most students had more than one gmail account and if they were logged in to their personal gmail account, they could not access the online system and it was not immediately clear to them what the problem was. Therefore in the second iteration the log in was changed to a username, which was the student's DIT email address. Similarly if external supervisors were logged into their personal gmail account rather than the account they had been provided with, they too could not access the system and in fact, this was the reason why the external supervisor who decided not to use the system could not log in initially. For academic year 2014-15 the external supervisors have also been given a username which is their own email address.

A facility for internal supervisors to create written feedback had been provided in the first iteration of the system, but only two supervisors actually availed of this facility and any feedback received was not flagged to the student. In the latest version of the logbook, students can now see on their opening summary page, when feedback has been provided and to which records. Supervisors have been provided with a detailed marking rubric (see figure two) to try to encourage more of them to give feedback. The rubric also includes common, basic errors that the online system cannot check for.

Following the pilot, students asked for the ability to edit records and competencies post-submission and they can now edit submissions up to the point at which the supervisors grade them, after which the submission is locked for editing. On the dispensing records there is now a field for supervisors to enter a mark out of ten, so that even if the supervisor does not provide written feedback, the student will at least know what mark their submission merited. Students also felt the parameter ranges for the fields on the dispensing records were very limiting, but this was reviewed and the ranges are in fact very generous and cover all but the most extreme dispensing cases.

In academic year 2014-15 the students and internal supervisors had an induction into the new online logbook at the start of the academic year (four months before going on placement) and the competencies section of the logbook was used in the first semester in the on-site, college clinics. This has ensured that students and internal supervisors are far more familiar with the system before placement commences. It also means that all the competencies are recorded via the online system. In the pilot some competencies were signed off on hard copy and some online and students reported that they would have preferred if all the competencies were online.

The students received a second induction in December 2014 (a month before placement starts) which was a ninety minute session, where they were shown how to use the dispensing record section of the online logbook and they were shown and asked to discuss examples of a poor and a good

dispensing record. They were also given copies of the internal supervisors' marking rubric.

The lead author of this paper also spoke to each of the six internal supervisors individually, to make sure they knew how to give feedback via the online system and to remind them of the existence of the rubric. Based on conversations with the supervisors at this point, it was decided to create email alerts for the supervisors so that they would know when a student had submitted a dispensing record and it was decided to make a copy of the marking rubric available to both the students and internal supervisors via the online system to encourage its use.

The external supervisors were given an induction to the online logbook in December 2014 and a workshop was run for supervisors in which examples of dispensing records from the previous year were discussed. Unprompted, several of the external supervisors commented that it was now their intention to take a closer look at the dispensing records being submitted by their students.

### **Discussion**

The majority of today's undergraduates could be considered "digital natives", a term coined by Prensky (2001) to describe anyone born after 1980 and whom he defines as "native speakers of the digital language of computers, video games and the Internet". As such it could be anticipated that these undergraduates would be comfortable using a new online system and this did appear to be the case, both in examining their interaction with the online logbook and their preference for e-submissions as stated in their post placement questionnaires.

The external supervisors were a mixture of digital natives and older practitioners and it might have been assumed that there would be some difficulty engaging the *non-natives* in an online system, but surprisingly their level of engagement was also very high, as indicated by their interaction with the logbook. Nine out of 18 supervisors worked for a chain of opticians which do not allow staff access to the wider internet (including the online logbook) via their work computers and yet even with this obvious hindrance, all nine still engaged. How the external supervisors felt about using an online system is more difficult to gauge given the small number of responses to the post placement questionnaire, but it is probably safe to assume that if they really hated it, they would have simply reverted to hard copy.

Probably the most surprising finding was the lack of engagement on the part of the internal supervisors. Although none of them would have qualified as digital natives, they would all be more familiar with the online environment than the average optometrist in practice. Their lack of engagement was most apparent in the lack of feedback supplied to students on their dispensing records. It may be that having supervised for a number of years, they had their own way of doing things and therefore were more reluctant to adopt a new system, particularly when compared to an external supervisor, who may never have supervised before, or who might not



supervise every year. In previous years all the hard copy dispensing records arrived in by a specific date along with other submissions and all the submissions were then marked simultaneously. Because the first iteration of the online logbook did not send email alerts when a dispensing record was submitted, unless the internal supervisor was periodically checking the logbook, they would have had no way of knowing when a dispensing record was ready for marking and this may be another reason why there was so little feedback given online. Proctor & Whatley (2011) piloted e-portfolios for students on work placement and they found a lack of engagement on the part of tutors. When this was explored via focus groups, tutors reported that they felt the e-portfolios represented an increase in workload (compared to the supervision of previous placements) as they had to learn how to use new software. The two internal supervisors interviewed for this project said that they found the online logbook easy to use and all supervisors were happy to continue to use the logbook in 2014-15. This suggests that in the case of this project, time required to become familiar with new software was not the primary reason for a lack of engagement.

### **Conclusions and Future Study**

There was very good engagement with the online system on the part of the students on work placement and their external placement supervisors, but a disappointing lack of engagement from internal (college) supervisors, particularly with respect to supplying the students with online, formative feedback. With the development of a standardised marking rubric and email alerts to notify internal supervisors when a student has submitted work, it is hoped that internal supervisor engagement will improve. The second iteration of the online logbook runs in academic year 2014-15 and this will be examined with a view to answering the following research questions: Can automatically generated, basic, formative feedback from an online system improve students' ability to complete records correctly? What are students' opinions regarding online, formative feedback? If supervisors are provided with a detailed marking rubric and the means to provide students with formative feedback online will they actually provide the feedback? What barriers exist that may prevent supervisors from providing formative feedback via an online system?

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Appendices

Refresh Data	New Disp Form	Previous Disp Forms	Competencies
Check Form	Prescription Laboratory Details		
System Messages: The form contains some errors. Please review and amend before submission.	Sphere	Cylinder	Axis
	RE +8.00	-1.00	90
	LE +8.5		0
	Mono	Fitting Height	Base Curve
	RE 30	12	Geo. Inset
	LE 31	12	Geo. Inset
	RE Lens Material	LE Lens Type	
	1.76 plastic	1.76 plastic	Varif
	RE Lens Form	LE MSU	
	RE Toric	LE Toric	RE 65
	LE 65		
	Coatings	Tints	
	MAR coat	None	
	Frame Manufacturer	Model Code	Colour
	Bilbo	123	Pink
	Eye Size H	Eye Size V	DBL
	48	30	12
	Side Length	LTB(R)	LTB(L)
	110	110	110
	Special Instructions	SpecialInstructions	

Figure One: Screenshot of an online dispensing record with fields highlighted in red where there are errors.

**Dispensing Record Marking Rubric**

	<b>1 mark</b>	<b>1.75 marks</b>	<b>2.5 marks</b>	<b>Total</b>
Difficulty or problem presented	The student has put some kind of introduction into this box but it is not really a problem or difficulty per se.	The student has outlined a problem or difficulty but some salient details are missing.	The student has clearly & completely outlined the difficulty or problem presented	
Management	The management does not completely address the problem and the student has not explained why the problem was only partly addressed.	The student outlines the ideal management and the actual management but does not explain what constraints prevented the ideal management.	The student outlines the ideal management and the actual management and explains why the two were not the same.	
Special instructions	Some instructions given to the patient were noted but these were incomplete in light of the particular dispense.	The correct use of the dispense was explained to the patient but drawbacks/ warnings were omitted.	Correct use and drawbacks of /warnings about the lens/frame to be dispensed were explained to the patient	
Particularly interesting and well managed case.	The problem presented was particularly interesting or unique but the management was less than ideal.	The problem was interesting/ unique and the management was well done.	The problem was interesting/ unique and the management showed some original thinking.	

Total out of 10:

Mistakes to look out for that the online system does not check:

1. All lenses of 1.6 index and above should have an MAR.
2. If the difference between the side length and length to bend is >30mm then really the sides should have been shortened. Obviously the greater this difference the more ridiculous the spectacles become.
3. If the difference between the side length and length to bend is ≤10mm then it is hard to see how the glasses could stay on the patient's face.
4. The percentage for tints should specify whether it is a percentage absorption or transmission. The colour of tints, photochromics and polarized lenses should be specified.
5. Patients given high adds should have their working distance noted in the special instructions.
6. Children and monocular patients should ideally be given polycarbonate or trivex lenses.
7. Compare the fitting height with the vertical eyesize and see if it makes sense. A rule of thumb for fitting height would be half the vertical eyesize plus 3 mm (approximately) for varifocals and single vision and half the vertical eyesize minus 3 mm for bifocals.
8. Beware large MSUs on high plus or minus Rx's – bad frame choice.

Students lose 2 marks for each basic error similar to those outlined above.

**Figure Two: The marking rubric for dispensing records**