

eSTeEM Project 17E-HM-LHCS-01 Final Report

Project Title:

Factors affecting student success in the workplace

Key words:

Higher education, Distance learning, Work-based learning, Student experience

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Executive summary:

- We undertook a survey of graduates of a distance-taught work-based learning qualification (the Foundation Degree in Paramedic Sciences) to identify aspects of support required by students to succeed in this context. We were looking not only at pass rate and degree classification, but on less measurable factors contributing to the overall student learning experience.
- Using a combination of quantitative, qualitative and open text data questions, we identified factors important for student success. Some of these factors were easily quantifiable (e.g. protected study time) but others were less easy to measure (e.g. students' feelings of being supported).
- The first part of our investigation involved collecting anonymised demographic data for all graduates of the Foundation Degree in Paramedic Sciences. In the second part of the project we invited all graduates (8 student cohorts) to participate in the survey. The number of respondents was small (n = 30; 8.9% response rate), and because our study was limited to one profession (Emergency care), our results may have limited relevance to other professions.
- Dedicated study time was not a significant predictor of student success as assessed by pass rate, but was related to the quality of achievement as measured by pass grade. More important for a perceived successful experience were less tangible factors such as relationship with a mentor, and being part of a supportive peer group.
- For maximum impact, the support measures we have identified should be overtly built into new course design. In particular, placements undertaken away from the primary workplace should be well organised, and students proactively supported while undertaking them.
- The value of these findings is that they inform, and can be used to enhance, the experience of students on work-based learning programmes and also on degree apprenticeships.

Aims and scope:

The purpose of this project was to investigate the effect of workplace support measures offered by employers on the academic performance and satisfaction of distance-taught paramedic students. We sought to identify areas where support was good, or where further support could significantly enhance the student learning experience. We used University data on demographics, SEaM survey data, and data from our own bespoke survey of graduates of the qualification.

Activities:

Our overall approach was to survey graduates of the Paramedic Sciences Foundation degree and assess whether their experiences were aligned to the 'official' perceptions of support provided by Employers and the OU. Our survey contained a combination of quantitative, qualitative and open text questions which covered student demographics and experiences. We asked them specifically about their experiences on the capstone module of the Foundation Degree, *S211 Developing your Paramedic practice*, because this 17-month, 60 credit module was the last the students completed before the award of their qualification

(and therefore the most recent in students' minds, aiding accurate recall). It was also the module in which students learned the most profession-specific skills.

We obtained permission to survey Paramedic Sciences FD graduates from the Human Research Ethics Committee and the Student Research Participation Panel, who also administered the survey. Our initial questionnaire required revision, and by following advice from more knowledgeable colleagues (e.g. Bart Rienties, Doug Clow) the final questionnaire was robust and elicited the data that we required. Initially we invited 6 cohorts of graduates to complete the survey. The response rate was low, and we therefore subsequently invited the final two cohorts of graduates to participate. Because we had not thought to 'ring-fence' the students during their studies, many were excluded because they had already been surveyed for other purposes. Only 339 students out of a possible total of more than 600, were available for our survey.

As scientists, we were confident about analysing categorical data using Microsoft Excel® and GraphPad Prism v5 (GraphPad Software, San Diego, California, USA, www.graphpad.com), but we lacked experience in thematic analysis (for the open text responses). We therefore undertook training to use NVivo (QSR International Pty. Ltd., www.qsrinternational.com), and used this software to identify key themes from the responses.

Findings:

All student enrolment to the Foundation degree was from pre-existing employees in the Ambulance service (98% in the UK National Health Service and 2% in independent organisations), mostly working as Emergency Care Assistants or equivalent roles, and wishing to become registered Paramedics. Students were jointly supported by their Employers and by the OU. Students were sponsored by their employers, who undertook to provide them with suitable facilities, learning opportunities and a workplace mentor. Employers were also responsible for arranging practice placements for their student Paramedics. Such placements are an essential component of Paramedic training, as specified by the College of Paramedics and the Healthcare Professions Council (HCPC) (College of Paramedics, 2014), so hold considerable importance within the Foundation degree. Although employers were advised to give the students protected time to study, not all of them did so, and students frequently had to use their annual leave to complete their studies. The OU provided normal levels of support, with students having an AL and the normal resources supplied by the SST (or its predecessor). Students were concurrently studying theory modules, as well as carrying out a full-time job with 12-hour shifts and compulsory overtime.

Macro effects of the workplace environment

The first part of this study investigated whether the facilities provided by employers, and particularly the amount of protected study time allowed, affected student performance. Figure 1 shows that only 8% of respondents said that their employers had given them protected study time. This is in contrast to the large number who were provided with a computer (60%) and with skills workshops (77%).

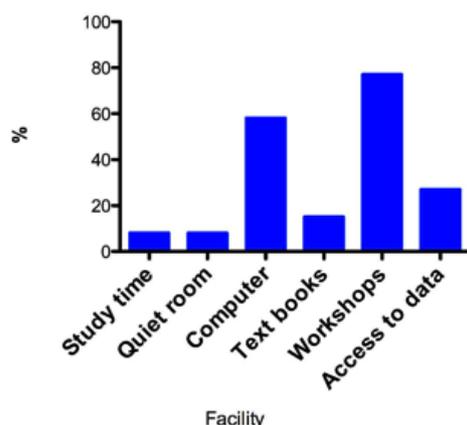


Figure 1. Percentage of respondents able to access study facilities. Note that most respondents chose at least two of the categories, which is why the percentages add up to more than 100.

Macdonald *et al.* (2010) have emphasised the need for dedicated study time for student success. We compared the pass rates and the quality of the pass (as judged by scores above 70% in the summative assessment) achieved by students in three different NHS Ambulance Trusts and a small group of independent providers. The results are shown in Table 1.

Table 1. Pass rate and pass quality for students from different employers. N.D., not declared.

Employer	Study days per year	Pass rate (%)	Percent of students achieving scores >70%
NHS Trust 1	17.5	94	28
NHS Trust 2	29	85	46
NHS Trust 3	0	89	34
Independents	N.D.	56	10

Surprisingly, among the NHS Trusts there was no effect of study days on pass rate, but there was a significant effect on pass quality, with students who were given more study time achieving higher pass marks ($p = 0.02$, ANOVA). There was also a significant difference in both pass rate and pass quality achieved by students from NHS Trusts compared to those from the independent providers ($p = 0.04$, Fisher's Exact test).

The marked differences between students working in NHS Trusts and those in independent providers suggested that the better infrastructure in NHS organisations, and perhaps consequently a more positive and supportive environment, is an important component of student success. For example, one student from an independent provider commented:

This course is impossible to complete if you do not work for the NHS. I have made approaches to local NHS Trusts for placement opportunities, none of whom will accept non-NHS applicants.

and

It is only my employer's secretary who deserves a thank you for ringing [...] hospitals.

However, even successful students complained about the level of support they received in the workplace. For example, the end-of-module SEaM survey revealed that only 47.9% felt that the feedback they received on their practice was good, only 43% felt that they were well supported by their placement provider, and just 13% felt that their mentor understood their needs. These results prompted us to extend our initial analysis to explore workplace support in more detail.

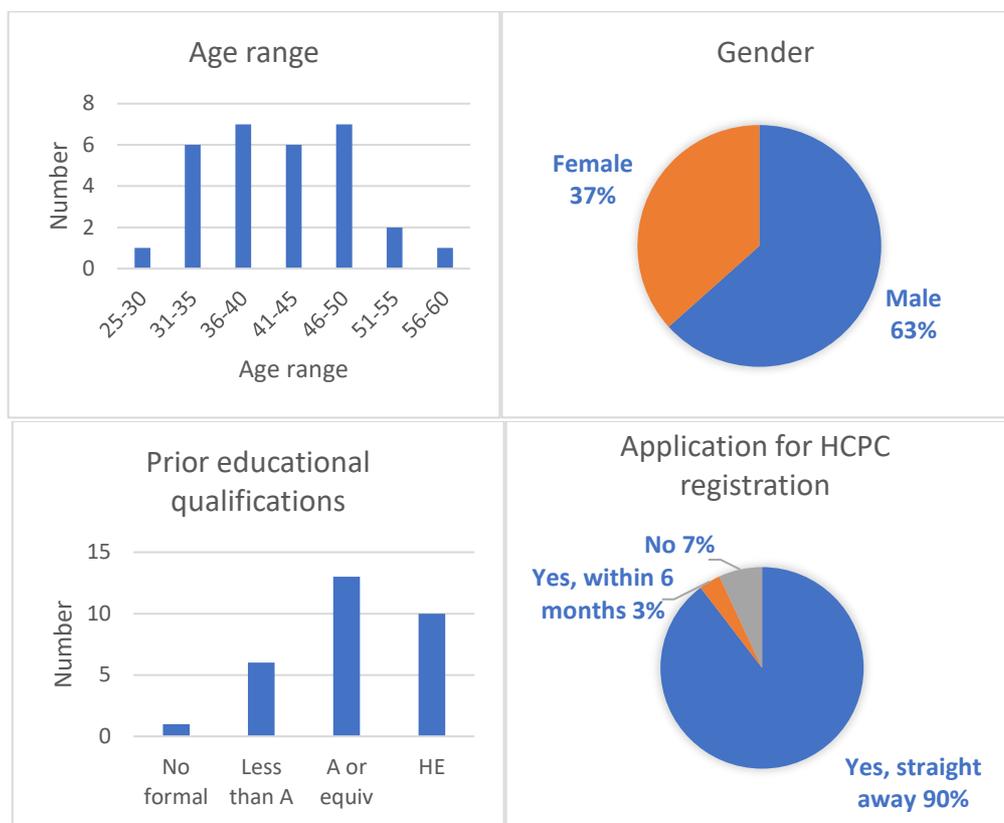
Micro effects of the workplace environment

Reporting on a large international study, Drysdale *et al.* (2016) asserted that WBL students cope differently with workplace challenges depending on their psychological make-up, with those having a strongly positive self-concept and good time management skills faring better than others. Anxiety, particularly for female students, was a significant issue. Therefore in the second part of this project we used a targeted survey to gain more insight into students' emotional as well as practical needs in the workplace. We sought to collect information about real workplace conditions from the student's perspective (as opposed to what employers told us) and to identify factors that are important for student success in workplace learning.

Participant demographics

Demographic data for participants in the second part of this project are summarised in Figure 2. Participants ranged in age from 28 to 58 (mode = 42) years. All were caucasian. 55% had their university fees paid for by their employer and the remaining 45% paid for themselves. The gender balance was skewed, with 37% respondents being female and 63% male, although this is consistent with the overall gender balance among Paramedics in England (39% female and 61% male; HCPC, 2019). The OU has an open policy for recruitment and there are no requirements for prior educational achievement. Participants in this survey had a wide range of prior educational achievements upon starting the qualification: 23% had no formal secondary school leaving qualifications (UK A Levels), 43% had secondary school leaving qualifications (A Levels or equivalent), and 33% had experience of tertiary education. Overall, 93% of students subsequently applied successfully to become registered Paramedics. This strong result indicates that in spite of set-backs (perceived or real) experienced by students, the Foundation degree was designed in such a way as to give even low academic achievers a chance to progress in their chosen career. One participant commented:

A very good course and great way of learning to become a Paramedic.

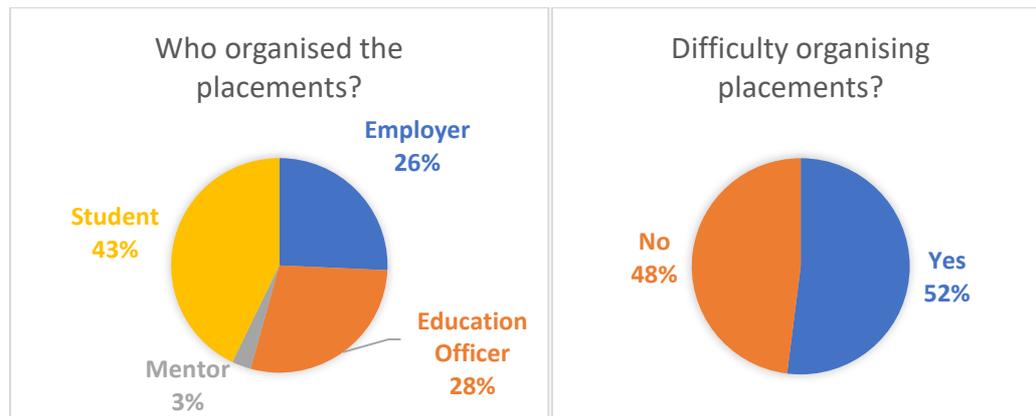
Figure 2. Demographic data of participants in the detailed survey.**Practice placements**

To comply with requirements of the College of Paramedics and the HCPC students on this qualification had to undertake placements in a variety of different health care settings (such as Obstetric Clinics, Paediatric Clinics, Cardiovascular departments and Surgical departments). As noted above, the organisation of these was the employers' responsibility, but in fact the detailed survey revealed that 43% of the placements were organised by students themselves (Figure 3). Many experienced difficulties in doing so, in finding time to undertake them, and in feeling supported while they were there. Sample quotes included:

Employer did not give us time off to attend placements or study leave or workshops. All this had to be in our own time.

Some placements clearly wanted me there and helped me learn, others weren't so keen and made it clear.

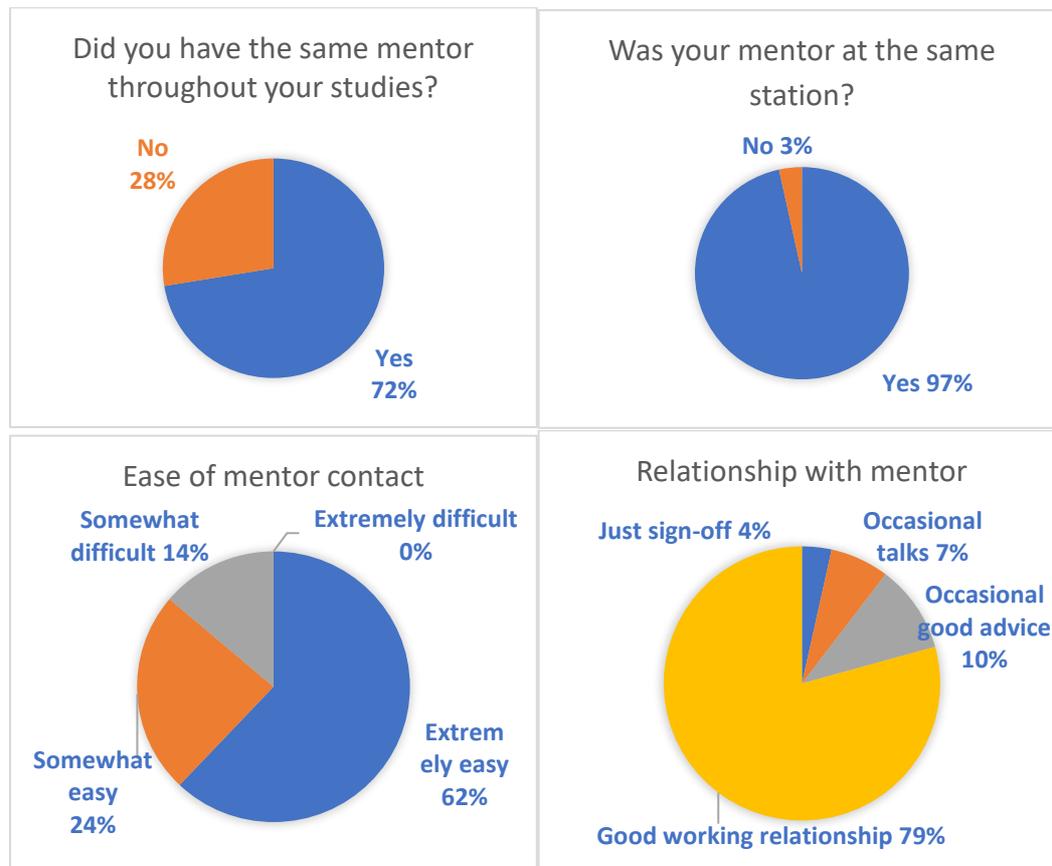
Because they were self organised, I had to 'stay under the radar' e.g. I spent a tremendous week on the paediatric ward of a hospital based on friendship with a consultant and had to avoid their hospital placement officer.

Figure 3. Responses about placement provision.

Problems around practice placements were a major issue for the students, and in the end-of-module survey of the whole cohort generated the highest number of complaints. Clearly this is an area that education providers and employers need to focus on in the future. However, although some students reported a good learning experience while on placement, a significant number felt unwelcomed by the host department. This is not conducive to learning and practising high level skills such as intubation.

Mentor support

The quality of mentoring during work-based learning is critical for a successful outcome, and the importance of an effective relationship with a workplace mentor has been reported elsewhere by McDonagh *et al.* (2010), Tout *et al.* (2014), and Kramer-Simpson (2018). Continuity of mentor support is important, as is the availability and ease of access to the mentor. Figure 4 shows responses to the survey questions about mentoring.

Figure 4. Students' views of mentor support (n = 29).

The importance of good, consistent mentoring is well known (Naseem, 2013; Ramalho, 2014). It was somewhat surprising, therefore, that 28% of respondents did not have the same mentor throughout their studies, and in 3% of cases the mentor was not even in the same workplace as the student, although these factors alone do not preclude good mentoring. 86% of students found their mentor easy (somewhat easy or extremely easy) to contact, and 79% had a close working relationship with their mentor.

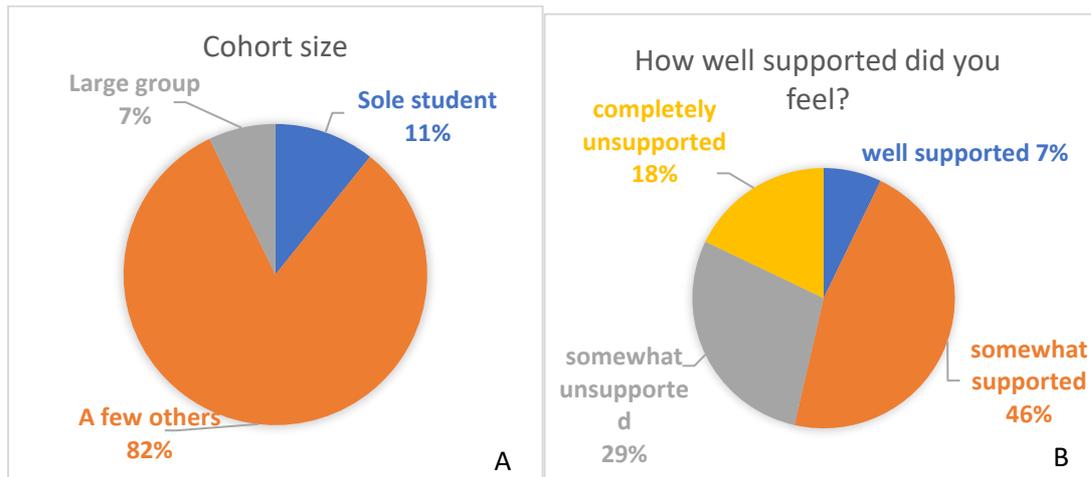
Peer support

The importance of peer support for students has been previously reported (Tout *et al.*, 2014; Borrott *et al.*, 2016; Pennaforte, 2015)), and this factor also emerged in our study. As well as practical problems, students also seemed to lack peer support in their workplace. Work-based learning students were generally not part of a lively student community. Only 7% had many other students in their workplace, and 11% were the only student there (Figure 5A). These numbers may have contributed to students' feelings that they were unsupported: only 7% felt well supported, and 47% felt somewhat or completely unsupported (Figure 5B). This lack of peer engagement and support is not conducive to student success. Some proactive students made efforts to establish their own peer support groups:

Very supportive crewmates.

I had limited opportunities to work with my mentor so ended up with a group of colleagues that I'd built 'trust relationships' with and I tended to approach them on issues relating to their strengths and experience

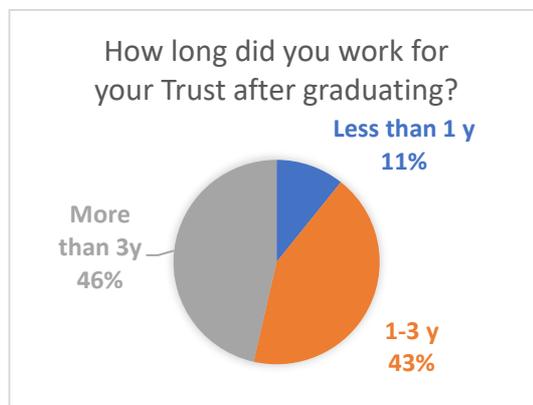
Figure 5. Students’ perceptions of support. A, size of student’s cohort; B, how supported they felt overall.



Student loyalty

One of our detailed survey questions (Table 2) asked how long after qualifying graduates remained working for the employer with whom they studied. As Figure 6 shows, graduates who became registered Paramedics demonstrated a high level of loyalty and commitment to their employer, with 89% continuing to work there for more than a year.

Figure 6. Post-registration commitment to employer



Time management

We asked respondents to identify other concerns that they had about the workplace learning experience. Analysis of the free text answers provided by the respondents produced the word cloud shown in Figure 7.



Figure 7. Word cloud derived in NVivo from free text responses.

It is clear from this Figure that time management was a major factor for students on this programme. These students, all of whom were in full-time employment, had a working pattern of 12-hour shifts, changing between day and night, and with compulsory overtime during busy periods. In light of this it is not surprising that students felt that they could not easily fit additional study into their normal days, and were compelled to use their annual leave to complete their study tasks (see above). It might be hypothesized that the provision of ring-fenced study time might alleviate this problem, but our quantitative findings showed no significant effect of allocated study hours on pass rate. This does not, of course, provide a measure of student contentment, and this is perhaps better correlated with the effect on pass quality that we report here. Time management skills have been identified as important by Liyanage *et al.* (2013) and by Drysdale *et al.* (2016), who also commented on the propensity of students to procrastinate as a negative factor for their success.

Advice to other students

We also asked graduates what advice they would give to other students undertaking this type of work-based, distance-taught study. Participants offered helpful advice, and clearly articulated the negative effect of their perceived time pressure:

Good time management. Great experience to work and practise what you are learning.

Talk to your [...] mentor if you are struggling. They've seen it all before and know how to help.

Fully engage with it throughout because something that doesn't seem relevant

at the beginning certainly proves useful later.

Keep at it, don't give up.

The end-of-module surveys used in this project are given to students when they are still immersed in their studies. This means that the responses are not necessarily very objective, being coloured by the students' most recent experiences. By inviting graduates of the Foundation degree to offer their views, we hoped to capture the benefits of their more measured hindsight and perspectives. We received many more positive comments:

At beginning seemed quite daunting however once completed very glad to have had this opportunity and to become a paramedic at the age of 52. Proved to myself that I could do it and now enjoying a challenging job.

I enjoyed it and admit to working diligently throughout completing all the tasks/activities.

Conclusions

This study aimed to identify factors in the workplace that affected students' academic achievement and their perception of their learning experience. The study is limited by the small number of respondents to the survey, and the restriction of our study to one employment area. Nevertheless, by eliciting the views of successful graduates from the Paramedic Sciences Foundation Degree, and combining them with the views expressed in within-course satisfaction surveys, we have been able to explore more deeply the factors that are important for the success of predominantly distance taught students learning in the workplace. Distance learning is an established and respected method for teaching health care (and other) students (Dodds, 2011), but it seems clear that such students have particular requirements that are important for their success and well-being. Although there was no statistically significant relationship between protected study time and student success, there was an effect on the level of achievement (Table 1). Moreover, since almost all students commented on the time pressures of their study (Figure 7) it is likely that a perception of time pressure contributed to raising stress levels and negative feelings. We would recommend that this be borne in mind when designing WBL curriculum. Pennaforte (2015) has stated that perceived good organisational support improves students' commitment to their studies, and our findings suggest that committed and successful students remain loyal to their employer (Figure 6). This indicates that resource spent in supporting students as fully as possible will be amply repaid in the long term.

Where placements are a component of the WBL, it is important to ensure that they are properly organised and that students are supported in their placements both by their employer and by the placement providers. It is not conducive to a successful placement if students are made to feel unwelcome and an encumbrance (Dornan *et al.*, 2009).

Finally an important factor for student well-being is the amount of day to day support they receive from both their peers and their workplace mentors. Where students are not part of a large student community in the workplace, the suggestion of 'student rovers', students based in other workplaces who can visit the student in their own workplace and provide support in this

way (Tout *et al.*, 2014) could be considered. Furthermore, training and development of mentors, such as the programme suggested by NHS Education for Scotland (2008), should certainly be factored in to course planning.

The results from the survey allowed us to identify factors that students claim are important for their success while studying in the work place. These factors have been used to inform plans for other WBL and Apprenticeship initiatives currently being undertaken within the OU to ensure that the students can be fully supported both by the university and the employer.

Impact:

- Student experience: the Foundation Degree in Paramedic Sciences has been discontinued because professional requirements have changed and the entry qualification for a Paramedic is now a Bachelor's degree. Thus any benefit to students from this work will affect future students on cognate qualifications. Nevertheless, we believe that the impact of our findings could be significant for students if our recommendations are implemented, giving them a better learning experience and thus enhanced success in their studies and careers.
- Teaching: our findings have fed directly into plans for a Laboratory Scientist Apprenticeship (STEM Faculty), and the module team for the WBL components of this qualification have spent considerable time and effort to design a student support framework that will improve their workplace experience. We have also disseminated our results to colleagues elsewhere in the OU, and our project has been used as a case study on the Employability Hub <https://learn3.open.ac.uk/course/view.php?id=300840&cmid=158516>.
- We hope that as a result of this our findings will guide colleagues' plans as well. Outside the OU, we have presented our data at an international conference (10th EDEN Research Workshop, Barcelona), where it was well received by teaching practitioners.
- The work has already benefitted the STEM Faculty's practices, and we anticipate it being useful to colleagues elsewhere in the University.
- We have received no additional funding so far, but the publication of our findings in a peer-reviewed journal (see below) has resulted in an invitation to examine a Masters thesis for Central University, Queensland.
- Both Fiona Aiken and Hilary MacQueen have been asked to act as reviewers for the journal *Higher Education, Skills and Work-Based Learning*.

List of deliverables:

Conferences

Aiken, Fiona and MacQueen, Hilary (2019) 8th eSTeEM Annual Conference, 8-9th May 2019, Milton Keynes.

Aiken, Fiona and MacQueen, Hilary (2019) OU Employability Conference, 2nd April 2019, Milton Keynes.

Aiken, F.J. and MacQueen, H.A. (2018) Best practice for supporting students in the workplace. *Proc. 10th EDEN Research Workshop*, <http://www.eden-online.org/resources/proceedings-and-book-of-abstracts/>

MacQueen, Hilary and Aiken, Fiona (2018) Best practice for supporting students in the workplace. LHCS Scholarship Day, October 2018, Milton Keynes.

MacQueen, Hilary and Aiken, Fiona (2018). Cushions in the workplace? What vocational students need to succeed. 7th eSTeEM Annual Conference, 25-26 April 2018, Milton Keynes.

Peer-reviewed publication

MacQueen, H.A. and Aiken, F.J. (2019) Supporting distance-taught students in the workplace. *Higher Education, Skills and Work Based Learning*. Published online 8.7.19, doi: 10.1108/HESWBL-04-2019-0048; <https://www.emerald.com/insight/content/doi/10.1108/HESWBL-04-2019-0048/full/html>

Figures and Tables:

Figure 1 Percentage of respondents able to access study facilities.

Figure 2 Demographic data of participants in the detailed survey.

Figure 3 Responses about placement provision.

Figure 4 Students' views of mentor support.

Figure 5 Students' perceptions of support.

Figure 6 Post-registration commitment to employer.

Figure 7 Word cloud derived in NVivo from free text responses.

Table 1 Pass rate and pass quality for students from different employers

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Approvals:

- SRPP/SSPP – Approval from the Student Research Project Panel/Staff Survey Project Panel was obtained according to the Open University's code of practice and procedures before embarking on this project. Application number 2016/091
- Ethical review – An ethical review was not obtained according to the Open University's code of practice and procedures before embarking on this project. Advice from Dr D Banks (Chair, HREC) was that there was no need for a formal review for this project.
- A Data Protection Impact Assessment/Compliance Check was obtained on 22.11.2016 according to the Open University's code of practice and procedures before embarking on this project. Data Protection registration number XXXX