

OUTSTANDING TEACHING, LEARNING AND ASSESSMENT TECHNICAL SKILLS NATIONAL PROGRAMME

Case study by:
Reaseheath College

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Managed by:

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OVERVIEW OF PROJECT

This project was devised by Reaseheath College as a response to a series of challenges facing the education and agricultural sector.

Through consultation with key employers and industry leaders across the primary production sectors, it is evident that industry leaders are already using data and LEAN management to assess the efficiency of their businesses and identify potential value creation in current and future markets. This highlights a gap between the skills and competencies developed within existing teaching and learning and those required and being used in the industry to future proof the sector.

The Post- 16 Skills Plan recognises the need to reform the skills system to secure our future prosperity. The transformation of technical education to provide high quality learning experiences for those students who are not in academic education is a significant challenge.

This is an extension project in the application of LEAN management to curriculum development and delivery. The first phase has successfully been completed on an employer-led dairy LEAN management project. Where LEAN management principles were integrated into schemes of work, produced work and lesson protocols, then embedded into practical delivery.

This project demonstrates how LEAN can be applied to other technical routes to deliver similar outcomes:

- Engage with employers in the development of a revised curriculum, that places vocational technical learning at its core;
- Increase the practical element of learning;
- Supports students and employers in understanding the value chain and applying it to their work and learning, maximising efficiency and eliminating waste;
- Uses live data and increased employer involvement to make learning more imaginative, inspirational and fulfilling.

This extension phase aims to up-skill practitioners in LEAN management tools and support them in applying the principles to specialist curriculum areas in preparation for the introduction of T-levels (*which forms part of the Government's new strategy to provide a vocational qualification as an alternative to 'A' levels*). The focus of this support is in the development of teaching

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'The operations within the Engineering department at Reaseheath College have been improved through increased efficiency when planning. The time savings gained through these efficiencies have enabled staff to increase the quality of provision for the learners. In addition, delivering lessons in accordance with LEAN protocols has allowed the learners the critically analyse the suitability of the protocol according to their individual needs.'

Name: Jamie Parker
Title: Curriculum Manager.
Reaseheath College

practices to work towards an outstanding provision in the FE sector for all students on a technical route. The project also aims to develop stronger links with employers by informing, consulting and establishing more meaningful work placement opportunities for students.

This LEAN management project addresses and contributes to the Skills Plan and helps with the preparation of T Levels by:

- Engaging with employers in the development of a revised curriculum, which places vocational technical learning at the centre;
- Enhancing employer engagement to a higher level, through the creation of a virtuous cycle of continuous improvement and knowledge sharing between staff, employers and students;
- A significant increase in the practical element of learning and the integration of theory;
- Supporting students and employers to understand the value chain and apply it in their work and learning, maximising efficiency and eliminating waste.

The new curriculum has been designed to prepare students for the future of the industry and a range of employment opportunities, which may include (but are not restricted to) traditional businesses. Particularly, the opportunities created through the technical revolution that is Agri-Tech.

The projects have focused on a close working relationship between the college-based provision and employer-based work experience, so that employers and college staff integrate closely to the benefit of both parties.

WHAT IS LEAN?

Lean is a customer focused methodology used to continuously improve any process through the elimination of waste in everything you do, it is based on the ideas of 'Continuous Incremental Improvement' and 'Respect for People'.

There are a few variant models to the process, the one below is tailored to suit the service industry:

- Focus on the customer.
- Identify and understand how the work gets done (the *value stream*).
- Manage, improve and smooth the process flow.

- Remove Non-Value-Added steps and waste.
- Manage by fact and reduce variation.
- Involve and equip the people in the process.
- Undertake improvement activity in a systematic way.

PARTNERS OF REASEHEATH COLLEGE

Due to the scope and the pioneering nature of the project one of the biggest challenges for the project was to find college partners able to engage and shape the project in the early stages of development. Consequently, we approached a number of colleges that were interested in exploring the LEAN process and willing to take an active part that could offer a different perspective.

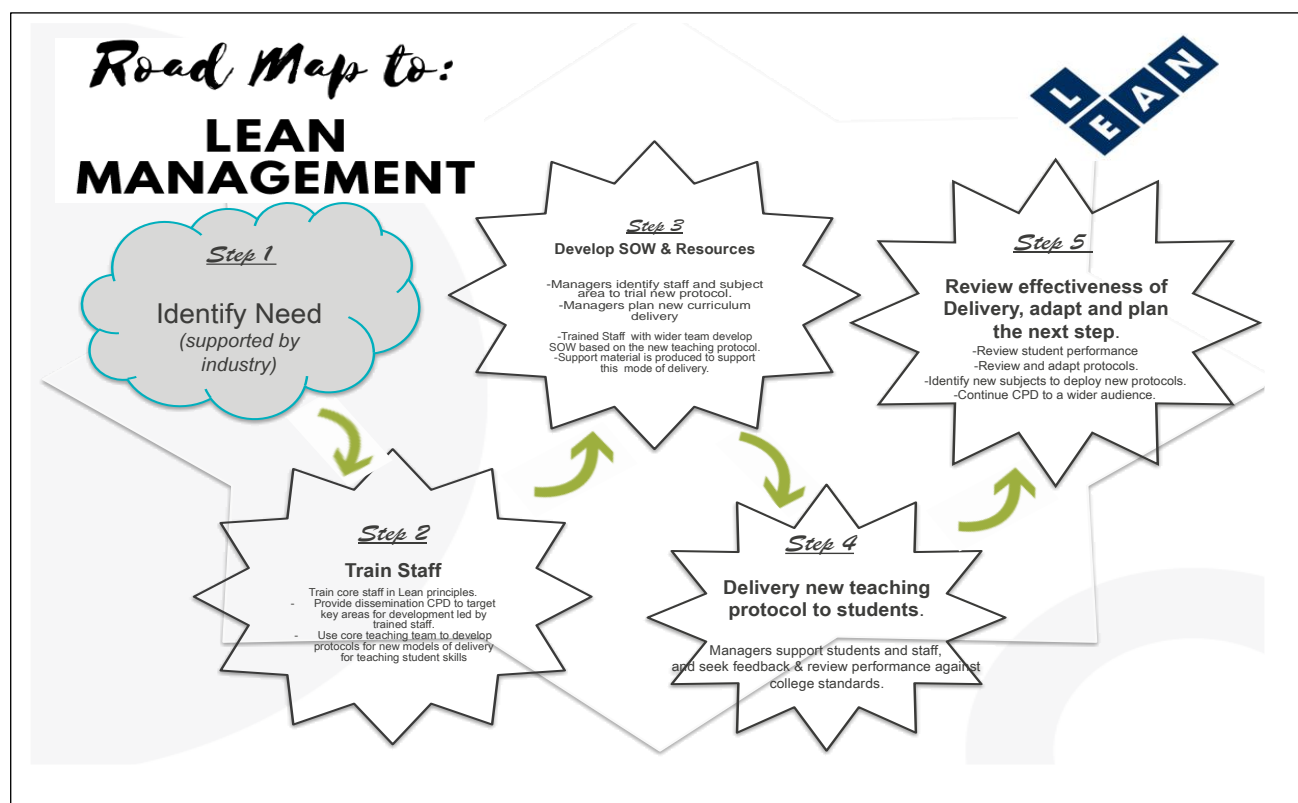
The partners and their curriculum areas are:

- **Reaseheath College (Lead Partner)- Agricultural Engineering. (RC)**
- **Nelson & Colne College- Health & Social Care. (NCC)**
- **Boston College – Business (BC)**

Each partner college chose a specialist curriculum area from the revised T routes. In addition, the sectors selected are in line with the LEP priority areas identified in their Strategic Economic Plan and proposed Local Institute of Technology Model.

SCHEMATIC OF THE PROJECT

The Graphic below demonstrates the application of Lean in the development of the Lecture-Practical lesson used by the Engineering Department at Reaseheath College.



PROJECT REACH

	Direct Contact		Indirect Contact
Category	Actual	Target	Actual
Middle & Senior Managers	4	4	2
Practitioners	11	10	9
Providers	2	4	
Learners impacted by Project:			
Boston College -	37	220	80
Reaseheath College-	221	500	136
Nelson & Colne College-	110	40	50
Employers	28	21	8

AIMS OF THE PROJECT

This project seeks to:

- 1) Develop the CPD previously delivered to the Reaseheath Agriculture Curriculum staff so that it is applicable and relevant across a number of partner-selected T-routes;
- 2) Deliver the CPD to a range of curriculum leads at partner Colleges, supporting staff to effectively embed principles and learning within schemes of work and student placements;
- 3) Engage with employers as part of the first CPD to provide feedback and work with curriculum staff on protocols developed in first three days of CPD. Each curriculum area will then have bespoke CPD to share with their sector specialist practitioners;
- 4) Build on the existing CPD with an additional session on how to lead cultural change in an organisation;
- 5) Share best practices on vocational technical delivery from the last project;
- 6) Monitor reach and impact of the project through creation of a virtual forum, as well as a formal evaluation process with the University of Nottingham;
- 7) Develop a range of resources and disseminate results.

PROJECT METHODOLOGY

At the commencement of the project, all senior curriculum management attended an induction to the Outstanding Teaching, Learning and Assessment (OTLA) project.

This covered:

- The OTLA project programme and the Education and Training Foundation ETF Professional Standards Framework;
- The rationale for the project;
- The aims of the project;
- The intended outputs and outcomes;
- The roles of the participants, i.e. the curriculum senior management, quality control, employers, and our peer advisor;
- The significance of the T- Level to future curriculum

development.

Working with Partners

Following this, a series of meetings were held, between 23 April and 4th May with potential colleges to identify suitable partners that would contribute to the quality of the project and provide a wider curriculum study in line with the T-level qualifications. Because of the geographical spread of these colleges, kick-off meetings have been held individually, followed by an online LEAN Management group created on LinkedIn.

An important consideration for the success of the project was to work with colleges that deliver other technical routes, to extend the project beyond land-based education. These meetings were all held with Peer Advisor support.

In addition to the Reaseheath Engineering Department, two partner colleges committed the time and resources required for the project.

Project Leads from all participating colleges were identified, Service Level Agreements (SLA) were issued and feedback was received from the partner colleges. A minimum of two curriculum staff from each College would engage in the project and act as 'LEAN Champions'. Chosen staff would need to commit to five consecutive days of intensive CPD, commencing July 2nd, 2018.

On completion of the course, participants were encouraged to continue with their CPD to achieve a level 5 qualification in LEAN management.

Partner colleges must identify and engage with a minimum of five further employers in their specific areas, who will attend the project brief (Day 5 of CPD). During this day, employers will be introduced to the project and its links to T-Levels, demonstrating the potential impact on their business.

In addition to the designated 'LEAN Champions' a further five members of staff from each college are required to be indirectly involved in the project. This could be through CPD, changes made to operation efficiency, or availability and access to using materials and concepts produced by the LEAN team members.

Individual Colleges

In conjunction with project leads, the LEAN Champions would identify suitable extension projects.

Each partner college would identify an area of improvement for either a process, or a change to curriculum delivery, where the impact on learning will lead to an overall improvement in either outstanding teaching, learning, and/or assessment. Once the projects were underway, a monthly progress report from each centre would provide an update on numbers and progress against the key performance indicators (KPI) for the project.

Employer Links & Project Concepts

Reaseheath College

All colleges used a variety of approaches to engage with employers and industry representative bodies. Within the Engineering Department at Reaseheath College, the relationship and co-operation that exists with employers is exceptional.

The college is currently the leading provider of Agricultural Engineering Apprenticeship Training in the UK, working closely with JCB, CNH and CLAAS UK. Further relationships exist with agricultural implement manufacturers such as Krone UK and Kuhn Farm Machinery.

These relationships are not just at manufacturer level, they also include a large group of dealer networks. The college holds a number of dealer network and manufacturer meetings each year. This provides ideal opportunities to discuss the Engineering LEAN project and receive their guidance and support.

The theme of the LEAN projects running through the Engineering department was :

- How the department used LEAN management principles to plan the purchase and deployment of equipment in the establishment of new Agri-tec Centre. Aligning with industry best practice would better prepare learners for working in industry. This also provides a dependable location for the equipment manufacturer to showcase their machinery to local farms and businesses.
- Using a LEAN approach, the department reconsidered the delivery methods of a selected core technology subject. The approach aligns with industry training norms, where the training is delivered under the general heading of Lecture-Practical. The under-pinning knowledge is



I feel that the lecture practical are better as I have ownership of the unit and I can deliver it in anyway.

The students prefer it as they feel they are able understand it better as they are viewing the components in front of them while it is being delivered.

Name: John Everall Patterson
Title: Engineering Lecturer
Location: Reaseheath College

delivered at the right time, within the workshop environment to support the practical elements of the tasks and skills being developed.

- The introduction of the Lecture-Practical requires managers to plan the delivery of the new curriculum and guide practitioners to develop new schemes of work and protocols of work aligned to the modules of study.
- The engineering industry is comfortable with LEAN manufacturing methodologies. A further development from the introduction of LEAN to the department, has been the delivery of LEAN management training, using Kando LEAN Kits, to a range of Engineering student groups. This has partly been at the request of two major employers, Bombardier and Arriva UK.

Partner- Boston College

Boston college held a series of breakfast meetings with local employers to discuss the LEAN project and gain their support. The three projects chosen at Boston were destination-focused, as they link to progression from education to employment.

These are:

- LEAN approach to what employers want from students when they undertake work placements.
- LEAN approach to the facilitation of apprenticeship reviews to improve relationships with employers and save time. Apprentice review meeting held with employers was also a sounding board for testing responses;
- LEAN approach to mental health support for learners undertaking Work Experience or entering employment.

Partner- Nelson & Colne

The N&C project also focused on improvements to the learner experience while on placement. The project focused on learners who were on a Level 3 Health and Social Care Work programme. With previous cohorts, work placements had been somewhat variable in quality and this required the department to take a fresh look at what was offered. A network of employers previously offering work placements provided the ideal starting point to engage with business.

Work placements form a mandatory part of L3 Health and Social Work programmes, to give learners valuable experience of working in the care sector. Learners are placed with four different

employers for a week at a time. Using the LEAN principles, the value created from placements was discussed at length with teachers, employers, and students. All participants highlighted challenges that arose from a lack of structure to placements and led to:

- Lack of clarity in purpose and expectations;
- Low value placed on experience, where students are unclear how the work links to learning;
- Employers struggling to find students something to do and students often looking bored;
- Reluctance of employers to take on students as there was no perceived benefit.

PROJECT OUTPUTS

The key outputs of this project that benefitted all partner Colleges within the LEAN project are summarised below:

- The production and delivery of a dynamic CPD programme for LEAN Management, including peer coaching and practical application of learned principles and tools into curriculum development and delivery;
- The establishment of a core LEAN team at each centre, to share information, ideas, and practice, and mentor the rest of their teams;
- Presentation of the project at a dissemination event to other colleges, to share project findings, impact, and lessons learned;
- Development of new CPD for employers to upskill in LEAN, as part of the work placement at two of the centres;

A new LEAN student placement programme at two centres.

Outputs Specific to individual College projects

Reaseheath College

- The establishment of a new £7m Agri-Tech centre, where the application of LEAN management methodology has helped managers plan, organise and equip five workshops.
- The establishment of new Engineering workshops which are industry compliant and available for use by employers and manufacturers for training and product launch



"The workbooks link well to each unit and give learners the chance to develop their knowledge in the best way for them. There is differentiation and they are inclusive. They will be helpful in teaching reflective practice and in understanding how each unit synoptically links together. "

Name: Amanda Boyer
Title: Health and Social Care Lead
Location: Nelson & Colne College

purposes.

- A self-instructional presentation made available to other colleges to share project findings, impact, and lessons learned.
- A Scheme of Work and detailed lesson protocols have been produced, using LEAN principles, for the new and combined Lecture-Practical delivery for a Level 3 Fundamental Engines unit of study.
- A Scheme of Work and resource materials for a one-day LEAN management training course, utilising a commercially available resource (Kando Kits).

Nelson & Colne

- The development of the two Synoptic Learning Placement Workbooks, that have been designed with the support of employers, for use by students during work placements.
- 110 students have benefited through a more structured work placement as a result of the introduction of a Synoptic Learning Placement Work Book.
- Six practitioners contributed through training and input to the creation of two workbooks.
- Two senior managers implemented and lead the process.
- Nine employers engaged, benefitting through a range of focus groups, and provided students a placement in their company.

Boston College

- 13 employers engaged, benefitting through a range of business breakfast meetings and focus groups, and provided students a placement in their company.
- A survey conducted with local employers provided valuable data that informed the teaching and preparation of students for placement.
- Led to the production of resource material for two lessons, showing learners employer expectations and student best practices in preparing for work placement.
- Offered the facility to employers to use Business Skype to improve the efficiency and convenience of communication with when conducting apprenticeship reviews. Introduction of this system led to better utilisation of time and

resources for employers and college staff.

PROJECT OUTCOMES

Outcomes applicable to all partner colleges:

- Development of core-skilled LEAN coaches to influence wider change.
- Start of a LEAN culture change, both within departments and the wider college community.
- Staff knowledge on technical education continually developed and employer engagement across all partner colleges increased. Consequently, employers' understanding of T-Levels through CPD and the LinkedIn group has been enhanced.
- Greater understanding of the ETF, and professional standards, resulting in more reflective practice.

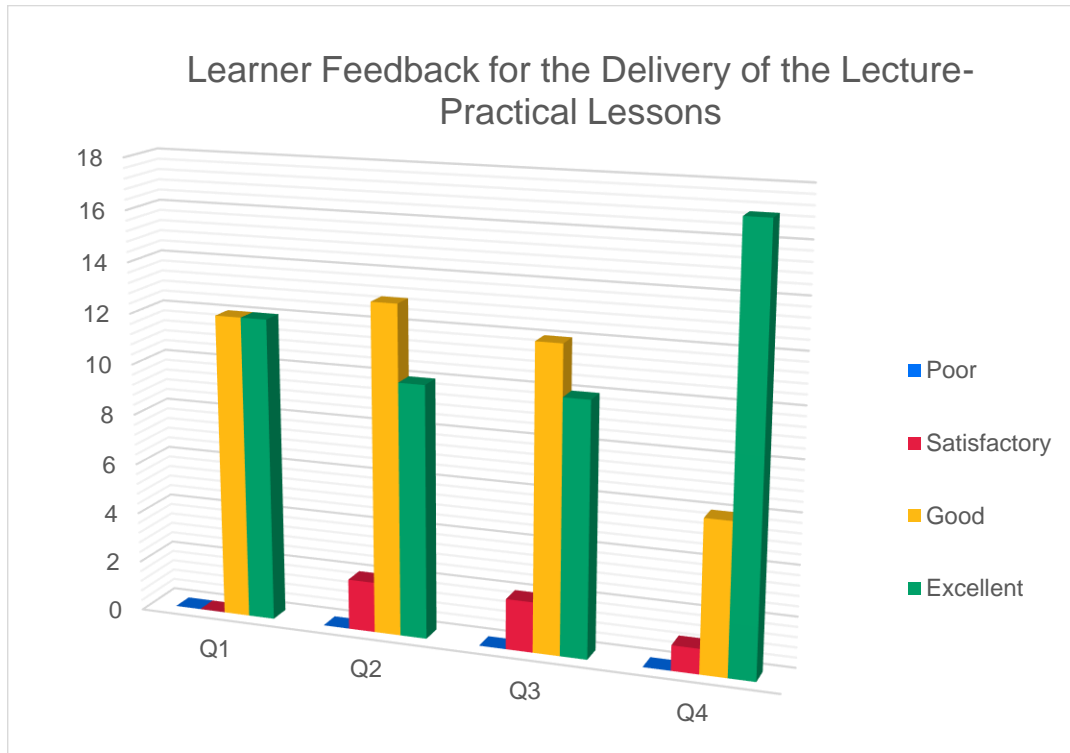
College Specific Outcomes

Reaseheath College

- Governors and senior management fully engaged with the project and looked to roll out plans further across the college.
- All Agriculture Engineering staff have been upskilled and involved in establishing what outstanding teaching and learning may look like from a student perspective.
- Enthusiasm across the Engineering team, with greater levels of collaboration between support and curriculum staff.
- The establishment of new Engineering workshops, that are designed to a commercial standard using LEAN protocols. The prospective view is that employers and manufacturers will now use the facilities for training and product launch purposes.
- The redevelopment of a core part of the curriculum, where delivery is more in line with how the industry delivers technical training, has been very well received by students. 221 students experienced this type of delivery in the first term of the academic year.

- A survey was completed to measure the learner satisfaction rates for the delivery of the Lecture-Practical. By combining both the good and excellent responses it clearly demonstrates that learners enjoyed and preferred this style of lesson.

The data is set out in the table below:



Q1- Did you enjoy the unit delivery?
 Q2- Did you feel your time was well spent?
 Q3- Did the material and activities make sense?
 Q4- How useful did you find the unit?

- The development of the lecture/practical teaching model is more suited to learning styles of the typical Engineering student. Using the Honey and Mumford learning styles model, our research identified that 73% of learners were either activists or pragmatists. The practical teaching model links extremely well to these styles of learning and provides the diversity that some traditional methods of delivery find difficult to address.
- An example of the LEAN process to improve teaching and learning makes use of a structured and detailed teaching protocol. When teaching the Fundamental Engines module, learners are expected to apply systematic methodologies to conduct various tasks using these

protocols. Learners are encouraged to review and update them. And with support, they can also adapt them to cater for their individual needs. This is widening participation by breaking down perceived barriers to learning. An example of a protocol can be viewed in the Reaseheath sample resource.

- Creation of a new course using 'KANDO KITS': One day course providing topic-based information, which is available as a CPD resource for staff and students across the college.
- The college's teaching and learning coaches in conjunction with department programme leaders have observed teaching sessions for the LEAN project and reported a number of outstanding features.
- Curriculum staff regularly engage with employers and experience LEAN out in industry. In addition, the improved relationship provides a real understanding of the career opportunities available to students. Tutors working closely with the department's dedicated work placement coordinator can further enhance the information Advice and Guidance (IFG) provided to learners.
- Employers have been supportive in providing real life examples of faults and scenarios to build the interim and end-of-module synoptic assessments. Three manufacturers have further provided diagnostic testing equipment, which provides learners with access to the new technology. Learners can compare and contrast different methods used by the different manufacturers.
- The marketing department and the school's liaison team have completed CPD delivered by the core LEAN team to enable them to effectively communicate to schools and their pupils on the meaning of LEAN and its potential impact on the sector. It has acted as an effective lead into discussions around agri-tech and the need for maths, IT and STEM skills to access new career pathways in the sector.

Nelson & Colne

Outcomes for the development of the synoptic learning placement workbook supported by employers were as follows:

- Increased structure for students, with a clear link between work-based practice and theoretical learning;
- Effective mapping of work-based learning to the curriculum leading to a reduction in assignments and teaching time;
- Enhanced preparation of students for employment with development of professional standards, increased focus on self-study, and CPD to track professional competencies;
- Motivated students and co-operation from employers with clear evidence of value created;
- Improved employer relationships and co-operation;
- Improved differentiation and reduction in marking and assessment in the long term.



If they can look at all obstacles in and out of the business as something that can be improved as opposed to escalating into a bigger problem or negativity then they will find life and work much easier. This is down to understanding the problem-solving process and how to make things more effective and efficient.

**NAME KELLY TIZZANO
TITLE COURSE LEADER
BOSTON COLLEGE**

Boston College

- Academic staff have a better understanding of local employers' needs and challenges. This process has provided staff with more relevant knowledge to instil in learners seeking careers in the local area.
- LEAN training equipped staff with a clear process for improving systems both at college and in students' work placements. It allows the learners to understand and put into practice critical analysis, that will assist them through their future careers.
- Two college practitioners completed extra study to achieve a Level 5 in LEAN Management, which was delivered by Kay Carson in December 2018. This will enable these practitioners to deliver LEAN Management Training.

Course Specific at Boston College

Level 1 Business students where 90% of the group are none

native speakers. With this course it's not about the students' ability but their confidence to communicate with and understand the employer's expectations.

- Learners are better informed about employers' expectations. Students feel more confident when starting work placements. This project has provided external work placements for 22 learners on the Level 1 Business course. This is a significant development when compared with previous years, where no Level 1 students completed a work placement **external** to the college.

Level 3 Year 2 and 3 ATT Apprentices:

- 14 employers implemented Business Skype to improve the efficiency and convenience of communication with the college when conducting apprenticeship reviews.

PROJECT IMPACT

Overview of the impact of the project for educational staff, students and employers.

Practitioners and Colleges

- Intensive CPD has resulted in enthused and motivated teaching teams who have adopted the principles of LEAN management and applied it to their teaching.
- The project has transformed the culture of the departments to think about how to LEAN the teaching process. They consider how and when they plan, what processes to use, meetings to target and are now able to maximise value and eliminate waste.
- All practitioners use process mapping within their lessons and see a positive impact on student engagement and learning.
- By using the LEAN approach, all teams in the project are better prepared for the introduction of new T-Levels.
- The teams are supportive of each other, willing to reflect on approaches to teaching and learning and willing to debate their effectiveness.
- Strengthened differentiation in teaching and learning to ensure that equality is a core driver to improvement.

Specific to Partner Colleges

- Managers within the Reaseheath team are planning to introduce the new schemes of work and lesson protocols due to the successful outcome of this project.
- A college-wide Work Experience Team at Boston College are to review the outcomes of the project with the view to

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The use of the Lean Management label has proven very effectively in the delivery to the student body. A turn of phrase they now implement to all problems in any lessons is, “shall we Lean it”. Where we were originally concerned that the students, we were dealing with would not have so understanding of lean management processes, we have been happily surprised that they have taken to it very effectively.

NAME: TIM WHITE
TITLE: CURRICULUM

implement improvements to the existing work experience

- provision.
- Academic staff have a better understanding of local employers and their needs and challenges. (N&C) & (BC)
- Through this project, the links established by Nelson & Colne College, with large local organisations has provided a spring board to cooperate on future new developments.

Specific to Employers

- Improved relationships with colleges and willingness to co-operate.
- 28 employers attended college organised meetings to develop better placement opportunities and information regarding the introduction of and changes associated with the new T-Levels.
- 135 employers provided students a placement within their businesses. (RC), (N&C) & (BC)
- Following the project, 14 employers are now using Business Skype to communicate with the college. This is likely to increase significantly over the next 12 months. (BC)
- The establishment of new engineering workshops using LEAN protocols to equip and manage the workshops will provide a facility that employers and manufacturers will use for training and product launch purposes in the region. These facilities have already been used by Krone UK and Kuhn Farm Machinery Manufacturer. (RC)
- Reaseheath Engineering will continue to work closely with a number of industry partners. This includes student visits to engineering establishments, such as JCB, McConnell, and Krone, and regular guest lectures from industry representation. Employers are investigating new ways of making their facilities and technology accessible as a teaching resource.
- Through this project, the links established with local businesses has provided a spring board to cooperate on future new developments.

Learners

- Through this process, learners develop a better understanding of the value of standardised procedures.
- Learners will have access to a wider employer-base due

to a higher number of employers participating in the work placement programme through management.

- 133 students have directly benefitted from the development of new teaching approaches to work placement, due to in part the help and guidance received from employer interviews. This has led to confident learners who are provided with a more structured work placement. Linking the outcomes of placement, through the use of the workbooks with the qualification, learning aims can be used potentially as an alternative assessment method and so reduce the reliance on assignment work. (N&C) & (BC)
- The 2017-18 Level 1 Business learners were the first cohort to be offered external work placements as a result of the effort to establish better links with employers. (B&C)
- The use of the LEAN process to re-design the training delivery method for 221 Level 3 Engineering students has led to an increase in their levels of participation and motivation to achieve in the subject. The lecture-practical delivery was clearly preferred by learners. Learners completed coursework that showed the necessary underpinning knowledge in a more timely and bespoke manner. (RC)
- It is difficult to measure the impact of this project by making a comparison with last year's cohort on learner outcomes. This is because the qualification is new, and the assessment has been replaced with an end of unit synoptic test. The initial learner outcomes for these topics are positive, with good student comments. (*Refer to chart in project outcome section*)
- The teaching team are pleased with how the learners have adapted to the use of the detailed teaching protocol which is now in use. From the feedback obtained from initial assessment, learners are making good progress on the practical skills and the fundamentals of the underpinning knowledge. However, some content of the protocol which includes professional practice and the sequencing of procedures for verifying a technical fault on a machine are areas requiring more thought by the team.
- Learners have increased access to advanced equipment, through investment in new resources and equipment to support project delivery. (RC)
- Learners are confident they are gaining the targeted skills that they will employ in careers at the cutting edge of their

sector, making them highly employable. (RC)

- Learners have seen the clear benefit of the placement workbooks and now they have made synoptic links they are looking forward to using them in their February placement. (Tutor: Amanda Boyer N&CC)

UPSKILLING THE WORKFORCE

A significant CPD programme was developed to enable the project delivery. Critical to the success of the project was to train a core group of staff in LEAN management. The fundamental principle underpinning LEAN management is continuous improvement, which requires a culture change. A LEAN team is required to be a core around which these changes can happen.

Specifically, to:

- Know their topic well and actively promote the message;
- Demonstrate the LEAN tools to the entire team;
- Mentor and coach other staff members to build capacity.

Eight members of staff, from three colleges were enrolled on the ILM Level 5 Dairy LEAN Management qualification.

The CPD programme consisted of five consecutive days of CPD that commenced on July 2nd 2018.

- Day 1- 3: new sector specific CPD delivered by Dr Kay Carson, streamline management, Reaseheath College LEAN team member.
- Day 4: Scheme of Work development by colleges including the development of sector specific protocols, employer placement frameworks and learner materials.
- Day 5: delivery of CPD to nominated employers, including briefing and critiquing new learner resources for technical vocational training.
- 2 staff members completed an additional 2 days of CPD to achieve a Level 5 qualification in Lean Management.

Each partner college identified and engaged with a further of 5 (minimum) employers in their specific areas who attended a project briefing on (Day 5 of CPD). Employers were introduced to the project and links to T-Levels, with the potential impact on their business.

Skills acquired through this CPD

Participants learn how to use LEAN tools in the delivery of technical training to achieve teaching objectives:

- Advances equality of access to learning through work differentiation;
- Encourages student self-assessment and self-improvement and achieves inclusion through good technical performance.
- Participants can use the concepts of value, waste and process to identify improvements to their teaching, plan their implementations and identify the controls that need to be put in place to sustain them.

"The workbooks will make placements more productive and give students a clear link to theory. They will create synoptic learning and support the externally controlled assessment."

Name: A. Boyer

Title: Health Care Tutor

Location: Nelson & Colne College

The output of the CPD was that the team could:

- Identify key resources required to be able to deliver LEAN.
- Review and rewrite as appropriate, schemes of work to include LEAN principles, tools and thinking. This resulted in 190 hours of teaching that incorporates LEAN;
- Develop a number of learning resources to support the new schemes of work;
- Identify and draft protocol (standard operating procedures) templates as the basis of all practical teaching sessions to ensure a consistent high-quality delivery across the Engineering curriculum teams. (RC)
- Assess all proposed changes to the curriculum against the principles of T- Levels and the Skills Plan.

These participants became the designated 'LEAN Champions' and a further five staff from each college were also required to be indirectly involved in the project. Further CPD was delivered by the 'LEAN Champions' to staff in their subject area and throughout their college. These additional staff assist mainly in teaching of the subjects applying the LEAN protocols. The main topics include integration principles of LEAN management in FE technical curriculums and teaching. CPD would further investigate strategies to engage and improve communication with employers to facilitate work placement opportunities.

Subsequent presentations were made to employers in the Boston College region, explaining the LEAN project and the introduction of T-Levels. They also investigated how colleges could create better opportunities to link with employers and understand their requirements for placing students in work experience.

TOWARDS OUTSTANDING TEACHING, LEARNING AND ASSESSMENT

Education has been transformed through a re-designed curriculum based on LEAN principles. Participants have been upskilled in identifying what outstanding teaching and learning may look like from a student perspective.

This has enabled students to apply their learning and be more independent. They benefit from close links with employers through applied initiatives and work placement opportunities.

Through the use of the LEAN management process, all teams are now better prepared for the introduction of the new T-Levels. Looking at a new initiative through the eyes of a LEAN practitioner will provide partners with the tools to objectively design an efficient and learner-focused curriculum. The participating teams and their respective departments now collaborate at a greater level, which is leading to quality improvements in the delivery of teaching, learning and assessment.

The participants evaluation of the programme scored high on learner outcomes, suggesting the projects were highly effective.

In addition, where programmes were assessed by the Reaseheath College's quality review team, the Advanced Teaching Practitioners identified a number of outstanding features.

Some of the main comments worthy of mention were that:

'The Lecture-Practical provided a realistic learning environment.'

'All learners appeared to be on task and took responsibility for their own learning.'

'The quality and access to equipment and resources is excellent.'

The LEAN process helps the teacher to focus on learning outcomes as a core value using LEAN and this provides with the drive to improve teaching.

The development of the Synoptic Learning Placement Handbook and the curriculum-based lesson protocols are just two examples of how the LEAN process has led to alternative approaches to assessment. This has helped the student significantly by providing clear links to the assessment requirement and a more meaningful work placement.

WHAT OUTPUTS AND RESOURCES ARE AVAILABLE FROM THIS PROJECT.

The following list of resources are combination of CPD material, detail of individual projects, and samples of teaching resource material developed through these projects. These are as follows:

Reaseheath College

- PowerPoint presentation demonstrating how LEAN protocols develop a new teaching session where both theory and practice are merged. (Lecture-Practical)

Boston College

- A paper which outlines the projects delivered at Boston College. These include employers' expectations of students undertaking work placement and the use of Business Skype to facilitate apprenticeship reviews in the work place.
- Two PowerPoint teaching resources explaining how students can better prepare for work placement.

Nelson & Colne College

- A paper which outlines the project delivery at Nelson & Colne College. Includes an explanation how LEAN has been used by the Health and Care team to make improvements to the learner experience on placement.
- Two Synoptic Learning placement workbooks, that were created through the support of employers.

LESSONS LEARNED THROUGH THE PROJECT

- Senior Management buy-in has been essential to the success of the project. This created a senior project champion on executive and legitimised the significant time, effort and additional resource that went into the project delivery. It also maintained a high profile for the project to overcome any barriers along the way.
- The large scale and ambition of this project and its implementation has resulted in a change in culture within the colleges that is increasingly collaborative, self-confident and self-critical. This will provide benefits in the

long term to staff, students and employers.

- The importance of having a core team upskilled in LEAN management. The fundamental principal underpinning LEAN management is one of continuous improvement, which requires a culture change. A LEAN team is required to be a core around which these changes can happen.
- Allocation of time to the project, particularly to optimise the impact of the core LEAN team.
- The project timing was not fully aligned with the academic year. In this project, the evaluation of the teaching and work placement projects were a challenge, because the LEAN project was completed in January. The ability to observe and report on outcomes in early January would only provide an initial indicator, which would necessitate further analysis.
- A dedicated project management resource, over and above practitioner managers, to deliver the project is essential.
- A project lead who can provide good support and advice, particularly for remote partners is necessary. The geographical location of the colleges did not lend itself easily to face-to-face contact. So reliable communication through LinkedIn and Skype was an important use of technology. The resignation of the Project Lead in mid project did impact on the momentum of the project. The communication and support with partner colleges was less effective during this period. The Boston College participant evaluation identified that more support and guidance, particularly in the early stages of the project was required. In addition, Boston College's participants also indicated that the CPD at the start of the course could have been completed in a shorter timeframe. The impact on their learners, through these projects was still too early to fully assess.
- At Nelson & Colne College, the implementation of the placement workbooks required more preparation with students. Employers also would have benefitted from a guide to the use of the workbooks. Tutors have needed to revisit the workbooks with learners in tutorials, and now have a better understanding of the process. The staff are confident that the work books will make a clear contribution towards synoptic learning, linking theory and practice. The participant evaluation from the Nelson & Colne College scored either 3 (effective) or 4 (highly effective) across all sections and questions. However, one

area scored lower which related to workload as a consequence of this project.

LEGACY, REFLECTION AND CONCLUSION

Dissemination of the project to other colleges, provoked interest and a desire to adopt methods among curriculum managers. The principles of LEAN were applied across four sectors and six potential T-Levels within the three colleges.

Engagement with employers has stimulated demand for upskilling. The introduction of LEAN concepts to the curriculum, as well as increased work placement opportunities, will help to increase the efficiency of work places and provide a pipeline of highly skilled future employees.

The culture change required by the project creates a sustainable legacy. Additionally, the introduction of LEAN is now providing a context and methodology for future curriculum developments in these colleges. Core LEAN team practitioners are delivering LEAN concepts to other curriculum areas.

These projects were pilot studies to demonstrate how the LEAN approach can be employed in the design, delivery and management of FE curriculum. The projects chosen demonstrated the use of LEAN for differing functional areas.

The future impact of these projects will be significant in both the mid- and long-term periods. The curriculum and work-based projects are still in their infancy. The initial outcomes of the projects are encouraging. The impact of these projects will not be fully appreciated until these curriculum activities are completed, reviewed and compared with existing methods.

In a number of the projects, the colleges are already beginning to roll out these new initiatives. For example, the Reaseheath Engineering department is planning all new units of study using the LEAN protocol. At Boston College, the Work-Based Learning team are adopting the new practices and resources developed through collaboration with employers.

One notable conclusion is that the LEAN projects have enthused team members. Staff within the project teams have been motivated and speak positively about the benefits for improving quality of teaching and learning. LEAN provides a fresh way to solve a problem, develop ideas, or streamline a business process.

Despite the commitment and time required to deliver the projects, the transformation within the department for practitioners in both

gaining a very clear understanding of what outstanding teaching and learning looks like, and the pride in knowing that what is being delivered to the student is excellent and will place students at the top of employers' wish lists.