

Blending Professional Education: Blending of Digital Course Content and Innovative Delivery Techniques

Dr Patrick Hartigan, InnoEnergy (patrick.hartigan@kic-innoenergy.com)

Abstract

This paper proposes a different interpretation of the term 'blended learning.' This is illustrated by a product entitled the "Internet of Energy Bootcamp", developed by InnoEnergy. Not only course delivery methods, but delegates' backgrounds and course content are also blended around the common theme of deriving valuable business information from real-world datasets. The result is efficiently delivered learning to prepare energy utility delegates for digitalisation of their sector.

Introduction

Blended learning is typically defined as the combination of online digital learning with conventional classroom techniques. Over the last decade or more, much experience has been gained of such learning methods, and they are extensively described in the literature. However, much of the focus has been on full-time learners in higher education settings [1]. Continuing Professional Development (CPD) is a very buoyant market for online courses but blended learning products for CPD are still evolving. Digital Transformation is now driving the need for blended CPD education across many industry sectors [2]. InnoEnergy, a Knowledge and Innovation Community of the European Institute of Innovation and Technology (EIT), serves the innovation and education needs of the energy industry, including electricity utilities and energy supply companies. In this paper, InnoEnergy's experience with a new blended education product for professional learners is briefly described.

Blending Online and Face-to-face learning

Secondaries from industry have different imperatives from full-time learners. Efficiency of course delivery is paramount. They can not afford extended periods away from work to attend face-to-face events and they appreciate the time- and location- independence of online learning. Learning objectives (as set out in Figure 1 below) must be clearly defined and delivered upon. Face-to-face events should be confined to hands-on (laboratory) teaching and to networking activities, in which peer-to-peer interaction is maximised. Material that can be taught online, should be. Online tools need to facilitate peer-to-peer interaction.

Blending Technology and Business

The traditional definition of blended learning does not go far enough. Content - not just delivery methods - should be mixed. In the case of content related to digitalisation, technology-related learning should not stand alone. It must be contextualised and made relevant to the delegates' business. In most industries, the rapid pace of digitalisation necessitates that delegates do not just learn about technology, they learn how to do innovate with it. This necessitates a change in the learner's mindset. The curriculum of InnoEnergy's blended learning product offering, entitled "Internet of Energy

Bootcamp,” therefore includes content about innovation with case studies describing how digital technologies have disrupted businesses. Then comes the hands-on learning, in which delegates practice their innovation skills. This takes the form of group sessions in which delegates conceive and develop a business idea, involving digital technologies, and present it to their peers – and a jury of ‘investors’ - in a pitching session. As with all innovative teams, it is preferred that the delegates come from mixed backgrounds: for example, engineering and business development.

Blending Digitalisation with Specific Learner Groups

As previously stated, delegates appreciate course content which is highly contextualised to their own business. The narrower the business focus the better. InnoEnergy’s “Internet of Energy Bootcamp” has recruited attendees from electricity utilities and energy supply companies. The content, case studies and pitching sessions are tailored to these sectors. The delegates also learn about very specific digital technologies: big data and cybersecurity. Background theory of these two technologies is learned online, while the face-to-face event includes laboratory exercises, in which delegates (even those with a non-technical background) gain hands-on familiarity with data analysis software tools and cybersecurity techniques.

Boot Camp OLOs	<ul style="list-style-type: none"> • Able to extract intelligence from anonymised smart meter dataset using data clustering tool • Use intelligence (from data) to propose relevant B2C or B2B business models • Understand limitations imposed by cybersecurity and privacy concerns • Ideate and present service design concepts, taking account of the above.
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Figure 1. Over-arching Learning Objectives (OLOs) of InnoEnergy’s Internet of Energy Bootcamp

Blending Delegate Perspectives

The heterogeneous backgrounds of delegates (as in the case of mixing engineers with business development managers) creates a diversity of perspectives, typical of participants in industrial business innovation teams. InnoEnergy’s Bootcamp approach seeks to maximise interaction between these perspectives during the business innovation (pitching) exercises, laboratories, social interactions during the face-to-face events and by means of online fora, which are an integral component of InnoEnergy’s “Institute of Sustainable Energy (iSE)” digital learning platform.

Data – the common theme

This approach to blended learning, therefore, mixes business and engineering content, delegates with different backgrounds, theoretical and hand-on learning, and so on. The common thread may not be obvious until the role of data is taken into account. In the digital economy, data has (somewhat contentiously [3]) been referred to as ‘the new oil’. This description implies both value and pervasiveness. The design of InnoEnergy’s Internet of Energy Bootcamp gives data the central role that it deserves. A massive dataset of real data from smart electricity meters (which has been anonymised to guarantee consumers’ privacy) is used throughout the face-to-face learning event to

bring big data, cybersecurity and business innovation very close to real-world applications. The term “data-driven education” has been used to describe the data provided by online learners from which information about skills gaps can be derived. For InnoEnergy’s Bootcamp, this definition could be broadened to include the use of real-world datasets as a teaching aid.

Next steps - agility

InnoEnergy had now amassed an inventory of hundreds of hours of online teaching material, including online lectures from leading experts in digitalisation, business innovation and digital technologies. The future promises rapid and agile development of blended learning products around these subject in which online materials are reused and face-to-face events are customised to the specific needs of individual industrial clients.

Conclusion

High levels of professional learner satisfaction are dependent upon achieving the right blend between online and classroom delivery but also the right blend of content and learner perspectives. Contextualisation of technology-related learning to specific business paradigms is essential. For education related to digitalisation, real-world datasets provide a catalyst for doing this.

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