Embedding Product Lifecycle Management (PLM) in Higher Education: a Case Study in Fashion Business

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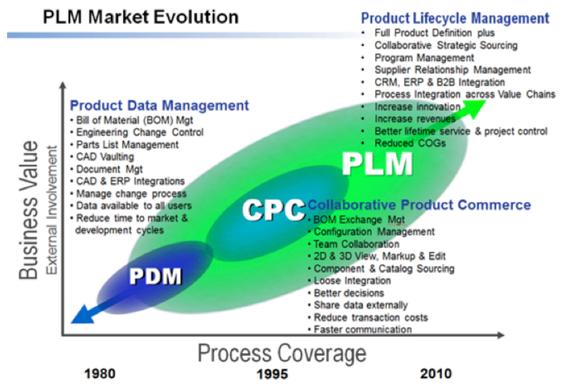
INTRODUCTION:

Research Question: How might Product Lifecycle Management (PLM) be employed to foster a critical mindset and better prepare learners for occupational practice?

Product life-cycle management (PLM) combined with business process modelling (BPM) tools are providing organisations with the means to manage the complexities of product that is created, sourced and retailed globally.



Diverse industries have adopted PLM an essential tool for coping with the challenges of more demanding global competition, ever – shortening product and component life cycles and growing customer needs. The holistic approach of product life-cycle management represents a paradigm shift for retail and manufacturing companies joining up many previously separate and independent processes, disciplines, functions and applications (Stark, 2011:8).

Challenges of PLM / technical innovation for industry-orientated educational courses:

- Courses traditionally have a function-focus perpetuating a "functional silo" view
- How to evolve in response (Fielding, McCardle, Eynard, Hartman and Fraser, 2014)
- Development of IT skills seen as time-consuming and a distraction
- Plethora of software makes teaching expertise unlikely
- Frequently "hands-on" practical sessions are typically by way of software vendor's training which include only technical and functional aspects of the system (Peters and Gomez, 2013)
- Traditional education is perpetuating the status quo in the industry model
- There is a paucity of robust evidence of the impact and value of educational developments involving PLM (Grieves, 2011; Khiste et al, 2014).
- Only a few research papers reporting on attempts to design and deliver courses which intensively use enterprise-level systems (Baumgartner and Shankararaman, 2014).

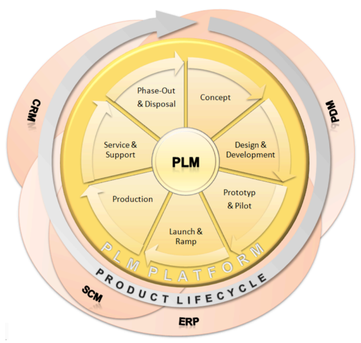


Fig 1. Visual representation of Product Lifecycle Management (Institute for Information Management in Engineering n.d.)

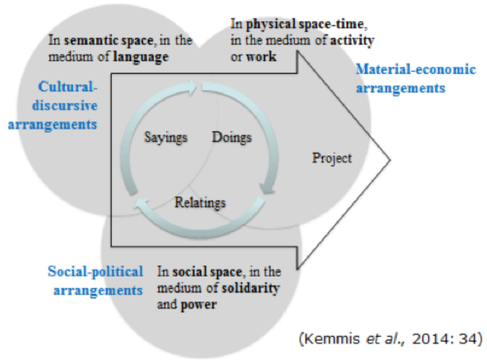
This study represents one of the first attempts to embed a PLM philosophy and system within an undergraduate course aligned with the retail, footwear and apparel (RFA) sector (Ashworth, 2014). An educational partnership with PTC for their FlexPLM software has been established. A conceptual framework of PLM is used as a means of visualising industry processes and practices holistically and displaying the interconnected nature of the elements in the process. What is sought through this intervention is the development of a critical mindset capable of utilising technological innovations to critique current / traditional processes and practices and create alternatives that respond to the demands and opportunities of new times, new needs and changes in circumstances.

METHODOLOGY:

Given the focus of this research centres on upon the learning experiences and practices that underpin curriculum development this research is located within the interpretive paradigm.
A case study approach is judged to be the most appropriate methodology as it aims to understand both complexity and context in a natural setting. A case study approach has been adopted in order to give sufficient emphasis to the particular all site of the project influenced by Schatzki's (2005) conception of 'site ontologies'. In this way, the influence of the site is recognised beyond a description of the context where the practice occurs but to understand how the site is also a set of conditions impacting on the practice. This is consistent with social practice theory where the practice landscape and its associated practice traditions are recognised to be as significant as the practices under scrutiny and transformation. Kemmis (2014:4) and states 'we cannot transform practices without transforming existing arrangements in the intersubjective spaces that support practices' to highlight the consequence of this. The case is an illustrative example of practitioner research.
A multi-method approach allows for contributions from participants, stakeholders and third party advisers.
A parallel ethnographic study of the intervention is proposed as a mechanism for reflecting on actions and consequences and fostering praxis is proposed.

DATA ANALYSIS:

With a social practice perspective the level of analysis is at the level of the work group rather than the individual. At this stage the table of invention for analysing practices as 'sayings, doings and relatings' (Kemmis 2014:39) is considered a useful method of analysis.



BENEFITS / PRELIMINARY FINDINGS:

For curriculum design:

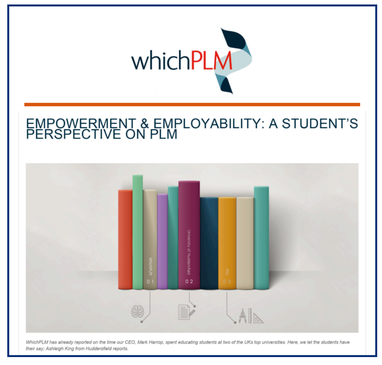
- **the visual representation of PLM enables the curriculum to be contextualised in the industry**
- **provides a mechanism for aligning the curriculum with changing business needs**
- **"curriculum holes" where there are issues applying theoretical knowledge in practice are revealed all**

For learning:

- **provides a map through which the significance of the constituent parts of product realisation can be readily identified offering a pathway to develop higher cognitive skills**
- **PLM provides a theoretical and practical basis for active participation and application of ideas in an authentic setting**
- **it has enabled PLM to be identified as a representation of a "threshold concept" – the interaction of all the elements in a process of ever-increasing complexity (Meyer and Land, 2005)**
- **facilitates the critique of current practices and processes**

For preparation for future practice:

- **learners develop creative alternatives in response to the challenges and opportunities in the industry**
- **provide a mechanism to foreground a praxis stance / moral purpose as an aim for all professionals**



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