Can you develop skills of knowledge transfer in the Final Year Undergraduate Classroom?

Key Skills, Knowledge transfer, Wisdom, Academic Graduate Apprentice

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**Abstract**

## This paper assesses the impact of a final year ‘knowledge management’ module on graduate learning. We review literature related to knowledge transfer and pedagogies such as problem-based learning (PBL) and whole-person centred learning (WPL) using reflective tools such as multi-source feedback assessment(MSF). Based on a sub-sample of the 197 student teams; reviewing involved 48 chapter submissions, across 8 per team over the last three years in this module; we evaluate their ability to solve major organizational problems using the skills required of knowledge transfer. All teams identified knowledge management issues varying from child abuse in the NHS to high-level corruption in FIFA. While groups did demonstrate deeper learning *via* application of knowledge management principles and the ability to transfer knowledge there was limited evidence of ‘wisdom’.

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1. **Introduction**

Policy makers in a growing number of countries have become increasingly concerned with the skill building in education that enables management of the entire knowledge chain: from creation to the conversion, diffusion, and entrepreneurial exploitation of knowledge (Dyer and Hurd 2016, Formica, 2005). This is and has been a consistent theme in academia for many years (UK Commission for Skills for Employment, 2016, Dyer *et al.,* 2014, Porter and McKibben, 1988). Higher education institutions and business schools are prominent in knowledge creation, co-creation, dissemination and utilisation, which enables companies to become successful and grow. Knowledge transfer (KT) can be seen as a basic process for speeding up the flow of knowledge among all components in the knowledge chain.

KT can enhance economic performance of a country, a region or an industry insofar as it provides a competent guide to the innovation process, which relies on a complex web of relationships. A broad range of competences to identify, capture, industrialise and commercialise free flowing knowledge to make KT conducive to economic growth have been aspirant of both industry and policy makers to influence education settings. The higher the quality of these competences, the more likely an entire economy is to receive benefits from new venture creations that are superior entrants in the market, as well as from the successful reorganisation of existing firms.

To enhance knowledge flows between universities and commercial organisations, educational institutions need to develop students that are outward-looking knowledge brokers with excellent skills including interpersonal and commercial awareness to underpin effective knowledge transfer. Know-how, know-what, know-why, know-whom, know-when as key ingredient for a successful knowledge transfer formula (Formica, 2005). To the advocates of KT, this process brings about a virtuous circuit of productivity, economic growth and entrepreneurial activity. From the perspective of economic performance, it is vital that there are mutually beneficial knowledge flows between academia, business and society at large.

Inventions, products and services are created through talking and transferring knowledge. Conversations are the sense-making conduits through which knowledge flows (Kilpi, 2005), and these didactic transmissions are reciprocal between workplace and educational spaces. The best preceptor is a participative engagement in conversations between knowledge seekers and knowledge users. This is where learning dynamics and learning value can be optimized. From this perspective, an effective KT process directs its attention to a “conscious conversation” (Yin and Lin, 2002) as the central activity that involves the deployment of a wide range of “soft skills”, interactions between academic research, students and industry are a cornerstone of KT.

While explicit, institutionalised and codified knowledge (i.e., the official rules written down in books and manuals) certainly contributes to the transmission of information, it is not a substitute for tacit knowledge (i.e., the informal, occupational wisdom and experience generated by individuals and teams grappling with everyday problems and passed on in the transfer of knowledge (Dyer *et al.,* 2014). KT is the process that puts knowledge in action and it relies upon the actions and flows by which tacit knowledge is transmitted between actors: from one unit (the source: a single person, group or organisation) to another (the recipient), with relevant feedback loops (Dyer *et al.,* 2014). The process is complex and nonlinear with a large number of interactions, not simply a matter of knowledge that passes down a production line linking academic researchers upstream and their business counterparts downstream (Dyer and Hurd 2016, Formica, 2005). KT is concerned with the subsequent absorption through which the recipient is affected by the experience of the source.

The paper begins with a review of literature related to knowledge transfer and the creation of ‘wise graduates’. We then summarize the nature of the module on which this research is based and briefly describe our research methods. After presentation of the data we discuss the implications of this study for the creation of wise graduates who can make a positive contribution to knowledge transfer in their future careers.

1. **Knowledge Transfer**

Transferring knowledge from one unit to another is more than a communication problem. First and foremost, KT is an evolutionary process of communicative interaction. It involves human actions to construct and transform mental content, and human interaction (“action of social relating”) for effective sharing and transfer of knowledge, ideas and experiences. Moreover, human interaction occurs in communities that are based on behavioural rules that encourage relationships to take place without the rigidity of formal contracts. Such relationships, based on social capital, are critical to viable KT processes within a given community. Whilst these are recognised as new key skills in an industry context, they are not always translated into key skills in an academic context (Formica, 2005).

The need to re-evaluate skills in the workforce and those of graduates entering the workforce was anticipated by Drucker (1988) who argued that organisations needed to revolutionise their working and management practices. Drucker (1988) predicted that typical businesses in 2008 would have half the levels of management and expectations on the remaining managers would be much higher and, consequently, they would need higher order skills and capabilities (Mearns and Jacobs 2014). His prediction of “glocalisation” meant that the work of traditional specialists would undergo radical change as a result of information technology. Therefore, knowledge-able users would transform data into information and, ultimately, into knowledge which could be transferred to other actors. Consequently, businesses would be knowledge-based with disciplined, self-directed specialists that measured their own performance through organised feedback from colleagues, customers and headquarters. The third era of revolution in the 2015 workplace that Drucker described entailed the shift from command and control driven organisations to knowledge-based organisation that continuously learn in order to survive and grow. Authors such as Malhotra (2001, 2004), Stewart (2001) and Koenig (2004, 2005) confirms the existence of this third revolution, culminating in the belief, as argued by Giley and Maycunich (2000), that organisation must ‘learn powerfully and collectively’.

The evolutionary transition through various knowledge eras has resulted in the drive for “learning powerfully and collectively” and requires innovation in the education systems that support the skill development of graduates (Karim et al, 2016). Since the establishment of business and management schools it was anticipated they would demonstrate knowledge as a transferable skill that could be transferred similar to other science based disciplines (Dierdorff, Rubin and Morgeson, 2009; Rubin and Dierdorff, 2009; Klimoski and Amos, 2012; Pincus and Rudnick, 2013). An example of the lack of progress towards a knowledge-based economy anticipated by Drucker (1988) is the use of extended reports in student assessment. Such approaches exemplify first era skills, makes a limited contribution to the second era phase and offers little contribution to the third era of knowledge. In the 21st century workplace this type of extended writing skill, while valued in academic settings, is rarely used in business is only one of many ways to demonstrate knowledge or expertise, and is not commensurate with 3rd era knowledge workers described by Drucker (1988). This then sets the context for revolutionising learning and assessment to parallel the seismic industrial shift.

At present, most universities are still organized to inform faculty, and students, about the process of commercial development from academic research (Rubin and Dierdorff, 2009; Klimoski and Amos, 2012; Pincus and Rudnick, 2013). Workshops and seminars help to communicate an understanding of the workplace and KT processes, but their informative content is too limited in its scope; they do not address the recipients’ need to acquire autonomous practices associated with powerful, collective learning. Hence, recipients are unable to enter the realm of imagination where the information is interpreted and sense-making occurs helping to turn knowledge into action. The influential university channel of knowledge communication is at the intersection between disciplines, both technical and business, and capable of melding the worlds of science and industry that arguable develop integrated learners (Welsh and Dehler, 2013).

Many academics agree that management education needs to be redesigned, with programmes that focus on key skill development (Boyatzis, Stubbs and Taylor, 2002; Rousseau and McCarthy, 2007; Dierdorff, Rubin and Morgeson, 2009; Rubin and Dierdorff, 2009; Klimoski and Amos, 2012; Pincus and Rudnick, 2013). A review of the literature reveals several catalogues of critically important skills but also documents the failure of Higher Education (HE) to deliver the appropriate skills to students of business and management in the 21st century workplace (Ungaretti *et al*, 2015; Kotter, 1999; Pfeffer and Fong, 2002; Mintzberg, 2004). The documented gap between the skills needed for most business and management careers and those acquired during students’ academic careers include effective knowledge exchange and transfer, critical and creative thinking, information literacy, adaptive leading and ethical problem solving. The combination of these knowledge-related skills leads to knowledgeable and wise decision making (Ungaretti *et al*, 2015). For example, in 2015 the QAA published the following outcomes for holders of a bachelor's degree with honours:

*4.15…conceptual understanding that enables the student to devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of a discipline*

*4.15.1 …developed an understanding of a complex body of knowledge, some of it at the current boundaries of an academic discipline. Through this, the holder will have developed analytical techniques and problem-solving skills that can be applied in many types of employment. They will be able to evaluate evidence, arguments and assumptions, to reach sound judgements and to communicate them effectively.*

*4.15.2 … should have the qualities needed for employment in situations requiring the exercise of personal responsibility, and decision-making in complex and unpredictable circumstances.*

1. **The creation of wise graduates**

Wise decision-making is the ultimate skill aspired to in the practice of organizational knowledge management and transfer (Nonaka and Takeuchi, 2011; Nonaka, 2008; Drucker 1988). The most prominent feature, compared with physical resources and information, is that wise decisions stem from humans engaging with data and information that is multifaceted and appears in different guises (Nonaka and Takeuchi, 2011). The necessity for wise judgements resulting in wise decisions has evolved from the changing nature of problems in an organisation context (Drucker, 1998; Nonaka 2008). Grint (2010) refers to these emerging problems as ‘wicked’ requiring astute solutions not necessarily known in the existing context of the workplace. These wicked problems which are less often bounded and subject to technical solutions are often divergent (Schumacher, 1977) messy (Ackoff 1984) or wicked (Rittel and Webber, 1984; Grint, 2011). As such, they require judgements of value, intelligence, as well as knowledge and cleverness (Schumacher, 1977; Ackoff, 1984; Rittel and Webber, 1984; Grint, 2010; Nonaka and Takeuchi, 2011). In essence, if wise decision making is critical to future organizational success, then it should be developed as a critical skill in graduates studying business and management. Prior to entering the “work places and spaces” undergraduate business students have effectively served a three-year academic apprenticeship (Woodward-Kron, 2004). Students are immersed in discipline-specific expert settings to acquire the knowledge, skills, and other abilities (KSAs) required for successful academic progression to graduation and future employment (QAA, 2015).

However, neither KT nor wisdom are referred to as skills or regarded as aspirational by either the HE sectors or government policy makers when establishing academic standards. Business leaders, though, are explicit that they want to recruit graduates capable of KT and with the ability to make wise decisions in complex, messy environments (Davenport and Prusak, 1998; Kotter, 1999; Hess, 200; Pfeffer and Sutton, 2013). When graduates transfer from academic settings to practice ‘in the world of work’ they will be constantly challenged to develop and share knowledge as well as make decisions that demonstrate their abilities to exercise wise judgements in an organizational context. These decisions will inform organizational judgements with regards to the calibre, ability and capacity of individuals to be retained and make progress in their careers.

Graduates ready to enter the business world should be able to demonstrate the critical KSAs as well as the ability to make wise decisions in a KT context to align theoretical learning with espoused practices. Nonaka (1998) asserts that while new knowledge is developed by individuals, teams play a critical role in articulating and amplifying that knowledge into an organizational context, so collective powerful learning needs to be present in the academic didactic transmission and skills to support KT. The problem in teaching a third-year module on knowledge management was to combine individual contributions into team discussions resulting in the requisite KSA, KT and wise decisions. To do this the study was approached with the aim of addressing the following question: by aligning the pedagogical approach to Nonaka’s hierarchy of KM using existing ‘level six’ 3rd year UG learning and assessment process can wise decision making be made and demonstrated in an academic environment?

There is an established evidence base that confirms people learn from experience when they are involved in solving problems (Burgoyne and Hodgson, 1983; Davies and Easterby-Smith, 1984; Holman, 2000; Kolb, 1972). Using a combination of integrated pedagogical approaches on the module design, the aim was to develop wise decision-making using knowledge management principles. The difficulties of trying to develop wise decision-making in a class of 300 students over a 12-week period on a compulsory capstone final year module cannot be underestimated. In 2013 the module and associated assessment procedures were redesigned and aligned with Figure 1 which depicts an adaptation of Skyrme and Amidon’s (1997) hierarchy of knowledge that underpins the basis of wisdom as the co-production of data, information and knowledge. The newly designed assessment was based on the expectation that students would research and identify their own problems and develop their own decision-making processes leading to a state of wisdom (Figure 1) which is much more closely aligned to learning powerfully and collectively. The output of the assessment is that students can substantiate in theory and practice KM problems and develop insightful KT solutions. This problem will have been debated many times within their self-selected working groups and then discussed and reviewed on three occasions with a seminar leader and/or industry expert. Using the KM framework, the expectation is placed on students to provide wise alternatives as a well formed commercial proposition underpinned by theoretical considerations. Based on this prism they develop existing recognised KSA as well as wise decision-making which is the underpinning philosophy of developing KT in learners.



Figure 1.

One of the pedagogical techniques that is utilized on the module is problem-based learning (PBL) to encourage the integration of content knowledge. This process assumes students can identify wisdom and have a perceived notion of wisdom to improve practice. Assessment depends on students’ ability to attain a level of wisdom from the learning process, assuming the next generation attain wisdom prior to leaving their educational setting or academic apprenticeship. So, the inference is that an academic apprenticeship incudes a KSA accumulation ascending to wisdom on graduation. Problem-based learning (PBL) as depicted in figure 2 is a promising approach focused on integrating skills and knowledge in an academic setting. It has roots in medical education for almost 50 years with demonstrated effectiveness (Entwistle, 2005). The other pedagogical approach that considers the skills needed and the personal development of the individual to embody and live those skills is whole person centred learning (WPL).



**Figure 2. Problem-based Learning adapted from Ungaretti et al 2015**

Ungaretti *et al.,* 2015 suggest that the process of PBL develops critical thinking and problem-solving/synthesis skills, imagination and creativity, information search and evaluation skills, an ability to deal with ambiguity and uncertainty, oral and written communication skills, and collaboration skills. Problem-based learning (PBL) is a pedagogy specifically created for the integration of content, knowledge and skill development. The essential defining characteristic is learning structured around an ambiguous and complex problem in which the teacher becomes a facilitator, supporting and guiding students in their attempts to solve real-world problems. Most definitions of PBL share a number of common characteristics; they begin with a problem to guide the learning, are learner centred, view the instructor as a facilitator, utilize collaborative small groups, and employ self-directed learning and reflection to acquire new knowledge (Barrows, 1996). PBL offers an important complement to pedagogies focused on imparting content knowledge. The goal is to integrate instructional approaches with different strengths to maximize student learning outcomes, including competent performance in real businesses. All these skills, plus wise decision-making, are needed to develop coherent KM solutions. Both these pedagogies have been used when redesigning the learning process, including the environment and output of the assessment, the integration of the both contributing to learning powerfully and collectively.

The use of scaffolding pedagogies was used by integrating PBL with a skills based pedagogy which considers the skills needed and the personal development of the individual to embody and live those skills, in this module whole person centred learning (WPL) was integrated. Whole person learning (WPL) is a pedagogical approach that encourages a relationship-based approach in which argument, debate, and collaboration with others is central (Holman et al., 1997; Hamilton, 2004). Uncertainty in educational programme replicates the circumstances in which learners experience their new ‘world of work’ (Gartner, 1988) because ‘the work place’ for the next generation (next gen) is an uncertain endeavour (Smilor, 1997). Adding ambiguity also heightens emotional exposure, which is inherent in learning that calls for wisdom (Cope, 2003). By simulating learning as a process of co-participation (Taylor and Thorpe, 2004), students work in self-selecting groups or ‘learning teams’ (Raelin, 1997), which are recognised as important. Whole person learning (WPL) is a pedagogical approach that encourages a relationship-based approach in which argument, debate, and collaboration with others is central (Holman et al., 1997; Hamilton, 2004). Examples of the use of PBL and WPL integration within the module can be seen in Table 1

**Table 1. Problem-based learning**

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| --- | --- | --- |
| Problem Based Learning(PBL) | Establish self-selected teams prior to teaching commencement.  | Establish tem expectations week 1. Both assessment points are team submission with peer evaluation forming a %age of grades |
| Students use 2 seminal knowledge management frameworks to identify a problem themselves (1st Problem) | Students’ theory test in practice from week 1 – 4. They identify their own real live problem (problem 1) |
| Students test theory in practice by triangulation of their own contemporary problem | Students present problem proposal in seminar and receive both peer and tutor feedback |
| Solution focus on theoretical and practice triangulation to test solutions validity and viability (their problem 1) | Week 7-8 Team Presentation. Assessment focus on problem analysis, definition and solution in practice using student identified appropriate analysis tools from a bank of resources provided. Assessed by academic / industry expert |
| 2nd Problem identification. Teams go on to identify a second problem, usually with an ethical / environmental challenge and adopt KM tools to produce a viable solution. Building on their first experience to develop further depth of analysis and insight by consolidation learning of theory in practice | Week 6-13 Team reportTeam produce an executive overview of a second problem. A team project plan is to be presented as an appendix. Each team member will have negotiated their own individual contribution to the large team report. This is developed using the scaffolding of whole person centred learning outcomes, plus individual contribution of defined role within the team and individual contribution |
| Whole Person Centred Learning(WPL) | MBTI – Byers Briggs Type Indicator | Personal insights and reflection of contribution and avoidance areas. |
| Belbin Team Analysis | Contribution and avoidance in team activities |
| Team Meeting with tutor | To present the team, the individuals and their approach to the project |
| Forming, Norming, Storming and Performing  | To develop progressive insight into team dynamics |
| Gibb’s and Kolb’s Reflective Cycle | Week 13 Reflective Assessment.Individual plus team reflection are incorporated. The student is encourage to reflect on graduate skills and compare and contrast their progression in this last part of their learners’ journey. The WPL approach accesses a deeper perspective of the students experiential learning contribution. |

The issue is not that one pedagogical approach is better than the other, but focuses on the need to address known limitations of existing learning approaches (Varanelli *et al.,* 2001). Entwining PBL and WPL exposes students to work on unfamiliar activities where group dynamics are crucial but uncontrollable (Mumford, 1996). Emotional exposure is inherent in the dynamics of the engaged group whilst the expectation that student use their previously acquired KSAs is essential to the learning process. Within the module design, lecturers offer unique scenarios by asking students to work on problems that they personally identify, encouraging greater commitment (Pittaway and Cope 2007). It is this significant ‘investment of the self’ that shapes learning (Cope, 2003). There are a number of supportive tutorials, that use the constructive alignment of critical reflective tools to develop critical insight of the individual and their skills as a group member are honed. The collective co-operation and co-production of knowledge are required to manage both the intellectual and emotional exposure that students experience.

WBL starts with the enlightenment of self and common practice for management students is for them to participate in self-assessment or multisource feedback assessment (MSF); also called peer review, 360-degree assessment or multi-rater assessment) during their management degree programme. These assessments provide students invaluable feedback about themselves and assist in their personal and professional development. By measuring a variety of factors including personality, behaviour, learning styles and performance, students are assisted in their transition to professional work-life. Self-assessment has several limitations, they present a narrow conceptualization of the self and self-evaluation have been repeatedly shown to be unreliable, biased, and inflated (Baumeister, 2005; Dunning, 2005; Leary, 2004; Mabe & West, 1982; Podsakoff & Organ, 1986).

MSF improves on self-assessment by including others’ assessment of the self. That MSF has found its way into the management classrooms as a way to understand and develop students’ managerial and leadership capabilities brings congruence from practice to theory (Boyatzis *et al.,* 2002; Rachman-Moore and Kenett, 2006). MSF is used to hone inter-personal skills in management and leadership at both the undergraduate and postgraduate levels. The strength of MSF as an assessment tool lies in its ability to include self-assessments made by the individual student and assessments of the student made by others (Taylor, 2014). MSF helps students gain greater self-awareness by comparing how they see themselves versus how others see them. The MSF process often concludes with the creation of a development plan based on the analysis of one’s self-ratings versus the ratings of others. This comparison process helps students identify key areas in need of development.

Despite these benefits, MSF also has limitations in its current treatment: It conceptualizes the self as an individual self, ignores the importance of context, and relies primarily on a self-other rating agreement (Taylor, 2014). It does not place emphasis of ethical resilience, which is known to build critically reflexive understandings of the existential, relational, and moral character of the individual in a leadership and management context (Cunliffe, 2004, 2016). Yet despite these limitations, convenience, cost, and efficiency keep the practice of self-assessment prevalent in management classrooms. “90 percent of *Fortune* 1000 firms use some form of multi-source assessment” (Taylor, 2014, p. 96). The contribution of combining WBL with PBL provides the additional pedagogical exploration into improving student self-assessment and the use of MSF in management education with work based problems to apply themselves at an individual level and their contribution as a team member and their enlightenment MSF gives provides synergistic learning of the team, so performing beyond the combination of individual contribution.

1. **The KM module and Research Approach**

 The study focuses on a knowledge management module at the authors’ University based on cohorts of students from 2013 to 2016. Eight hundred and fifty-nine final year students completed the module, working in one hundred and ninety-seven teams. In this study, we focus on a small sub-set of eight teams, who submitted eight extended reports, each report containing six chapters; so forty eight chapters were analysed to examine the main issues discussed above. The teams are required to identify an organization and then carry out an analysis of a major knowledge-management problem. Their analyses must be based on secondary sources and students are not expected to obtain primary data. The teams were selected as good examples of applying the core principles of the module across a wide-range of organizations including the BBC, American Red Cross and FIFA. Each team had to present their findings in a report containing five sections: introduction, problem analysis, proposed solutions, and implementation strategy and group reflections. The main elements of the student reports had to be less than 5000 words and the group reflections needed to be between 1000-1500 words. The use of student reports and reflections are long-established as a legitimate data source in management learning (Case and Silvester, 2002). Each of the eight group reports were analysed and are summarized in Table 2 (also see Appendix 1).

The KM module comprises three themes, people, learning and knowledge transfer, contextualised in a contemporary context so the development of learning outcomes, areas of study and assessments are intrinsically linked across all three themes. The module is introduced to students from an employer’s perspective, and a visiting expert articulates the contemporary workplace and associated activities that occur within the spaces and places work occupies. The expert then ‘maps’ the people needed to fulfil organisational aspirations, which develops students’ awareness of what employers expect and they are encourage to discuss the gaps in workforce skills required for organisations to innovate and grow. Weekly activities map out sets of skills the students are expected to acquire and they are made aware of the need to prepare for their next learning activity. While, this mode of teaching is challenging for staff to deliver, the contribution of weekly activities is fundamental to the success of deeper learning. In addition, the rich VLE (virtual learning environment) is an inherent feature that sustains the flexible for students to enhance their learning.

The module design provides a framework which builds on a combination of KM theory and pedagogy to support learning powerfully and collectively. The integration of these pedagogies and the multidisciplinary approach to teaching Knowledge Management, sets an expectation on the students to be adaptive and creative in the face of complex challenges and, knowledge transfer agents of positive social change (Dehler, 2009; Welsh & Dehler, 2013). The key skills (include effective knowledge exchange and transfer, effective critical and creative thinking, information literacy, adaptive leading and ethical problem solving (Ungaretti *et al*, 2015); with the outcomes leading to knowledgeable wise decision-making developed through problem-based case studies, activity-based learning and person centred learning approaches in seminars and workshops. Problem-based weekly reflective activities are available to all students, and by differentiated learning outcomes build the skills base while testing the development of “graduateness” through the module. Lectures are captured for playback and weekly activities are supported with interactive on-line support by the module leader with several proposals put forward by both students and academic staff. On-line post-activity reflection is encouraged by clear tasks for each activity, each underpinned with a live case study taken from recent media.

 Eight group reports, representing 40 students, were selected as broadly representative of performance across the module. The data in each report were analysed and categorised based on five themes: the nature of the problem, the proposed solutions, implementation plans and the teams’ reflections at the individual and group levels (summarized in appendix 1).

1. **Summarizing the Data**

As appendix 1. demonstrates, all eight groups were effective in identifying knowledge-management problems which ranged from down-sizing in the BBC and the Environmental Agency to issues raised by a lack of professionalism in dealing with child abuse in the case of ‘Baby P’ in the NHS. The two groups examining FIFA found that there was an imbalance of power, which created barriers to successful knowledge-management and allowed corruption to take place at the highest-levels of the organization. Her Majesty’s Revenue & Customs (HRMC) and Ronald McDonald House Charities wereboth facing relatively uncomplicated problems: tax evasion in the case of MNCs in the former and an image problem associated with McDonalds in the case of for the latter. Problems faced by the American Red Cross (AMR) were probably the most complex and messy because of difficulties associated with the very different backgrounds, languages and experiences of AMR employees and those recruited locally (in this case Haiti). In the majority of cases, the groups used a combination of SWOT and PESTLE analyses to draw out the main problems in each of the organizations.

 In terms of proposing solutions, there was agreement in the two FIFA groups that a profound culture change was required. FIFA1 suggested the need to reconfigure ethics training and encouraged the appointment of a chief knowledge officer. FIFA2 identified the need for fundamental structural change incorporating a new governing body, which would insist on greater transparency and encourage a move towards double and triple-loop learning as well as unlearning. The BBC group were more focused on technical solutions associated with the adoption of advanced IT systems and the creation of virtual learning environments to encourage greater knowledge-sharing. Perhaps not surprisingly, the NHS group also focused on the need for a culture change to discourage the tendency to ignore negative or unfavourable information. In particular, there was certainly a need to move away from single-loop learning to triple-loop learning. The HMRC group’s main proposal was a move towards a US-based unitary tax system for businesses, which would ‘eliminate’ tax avoidance. They also suggested more encouragement for staff to share their tacit knowledge and have greater faith in the virtue of adopting advanced technologies. In the case of AMR, solutions focused on creating better mechanisms for knowledge-sharing by use of rewards and incentives. It was suggested that this approach would also reduce turnover and encourage double-loop learning. Double-loop learning was also encouraged in the EA by the creation of virtual learning teams and communities of practice. The group also suggested the need to increase spending on technical equipment such as message boards and training to encourage the sharing of tacit knowledge. Finally, the Ronald McDonald House Charities group also focused on the need for greater use of social media to help encourage the transition from tacit to explicit knowledge.

 Given the difficulties of developing a good understanding of the way in which organizations operate, suggestions related to implementation were certainly the weakest section of the reports. Also, most of the organizations which were the focus of the group projects were large, very complex and, in case of FIFA, very secretive, which increased the difficulties of deciding how best to implement wholesale organizational changes.

 In contrast to the problems related to implementation, the group reflections were much more convincing. The BBC group were consistent in embracing the same kind of IT solutions for their own communications as they had suggested were required by the organization. Perhaps more surprisingly, the group adopted a fairly traditional hierarchical approach to their own organization. FIFA1 tried to make use of Belbin to develop a better understanding of their team roles – but this created interpersonal conflict because some members were not familiar with the Belbin model. The team also relied on one team member to collect the majority of the FIFA data and were certainly aware of the ideological issues associated with the dominance of an individual ‘shaping’ the data. FIFA2 also rejected Belbin because of the fluid nature of roles and, instead, made use of the VARK questionnaire to allocate roles. Group members did engage in double-loop learning to overcome conflict between members related to their presentation. Both the HRMC and the EA groups also tried and rejected Belbin because they felt that the model outdated. The HRMC group did try to apply the principles of a ‘world café’ and were explicit in their move from single to double-loop learning to help mobilize their tacit knowledge.

 The EA group adopted MBIT in place of Belbin and made extensive use of online platforms to help with their own communications and group-work. Interestingly, reflected on the way different personalities brought different aspects to the organization of team-work. The ARC group also used MBIT instead of Belbin and were certainly aware of the ‘extrovert bias’ within the group. Acknowledged the importance of face-to-face communication as well as the creation of an ‘online community’. However, overall their reflections on the group processes were quite limited. In terms of limited reflections, the Ronald McDonald group were certainly the weakest and they did little more than consider how group members perceived each other based on the Johari Window. In contrast, the NHS group provided the most sophisticated reflections and made extensive use of the world café principles. Their regular face-to-face meeting were supplemented by the use of social media to keep in touch with each other. Overall, their activities were dominated by their emphasis on communications and they were quite limited in managing the basic principles of group-work such as time management.

1. **Discussion and contribution**

Staff teaching on the KM module set the expectancy from week one that they anticipant the students will develop skills in wise decision making through the use of knowledge transfer in the team learning journeys and individual achievements. These skills will be evident in debates, expert review meetings, presentations and the assessment process. From the onset, the theory and practice of knowledge is introduced using key authors and applied to case studies to ensure explicit links are made between theory and practice and how both inter-related demonstrating didactic transmission. Students self-select into teams prior to the module teaching starting. In taking a socially situated approach students are using KM concepts while WPL integrated with PBL develops both individual and collective team learning with the intention of learning powerfully and collectively in teams. This learning process develops learners with insight and understanding to achieve deeper learning of self and other to enhance the group learning activities process focusing on knowledge generation and knowledge dissemination to support their use of KM theories and practices. The existing assessment criteria were used as an approved and established measure of ability.

In terms of the data presented here, based on a relatively small sub-set of the students who have taken this module over the last three years, there is certainly evidence of a problem-based approach to learning. The problem based approach has enabled the students to articulate theory to practice and test individual knowledge as well as group knowledge generation and transfer. All eight teams were quite effective in identifying knowledge management problems which varying from failure to deal with child abuse in the case of the NHS to the abuse of power and high-levels of corruption in FIFA. In suggesting knowledge management and knowledge transfer solutions, most of the groups tried hard to make use of key concepts from the module. For example, there was recognition of the need for a complete ‘culture change’ in a number of the organizations including the BBC, FIFA, the NHS. Other teams identified the need to instigate knowledge management policies and to make better use of information technologies to share knowledge more widely (HMRC, Environment Agency and the American Red Cross). The Ronald McDonald team also suggested the need for better use of IT, and demonstrating wider complex understanding and the need to transfer and embed knowledge this was combined with the identification of the need to create ‘communities of practice’ to enhance the sharing of tacit knowledge.

As indicated above, the least satisfactory element of all the reports was the teams’ inability to suggest meaningful solutions to the problems they identified. At one level this is understandable as the teams were dealing with large, complex organizations, which were all suffering from current long-standing and intractable problems. Also, although a small proportion of students had combined a ‘year in industry’ with their studies, most had little experience of the world beyond education, so their academic apprenticeship was the most prevalent experience. Nevertheless, there was certainly an acknowledgement that a failure of effective knowledge management and transfer was a core problem in all the organizations. Therefore, the groupwork certainly gave them the opportunity to apply various analytical frameworks to the study of real-life organizational problems. Some of the teams also tried to apply the principles of good knowledge management to the organization of their teams. For some teams this involved an attempt to make use of Belbin’s model to organize their group activities – although most teams found this approach too crude and simplistic, so again they were able to challenge theoretical positions and recognise limitations of frameworks. The N HS group appeared to be the most effective in making use of a number of concepts including the ‘world café’ principle, regular face-to-face interactions and regular use of social media to keep in touch.

The reflective element of the report gave students the opportunity to reflect on their individual and group learning and mention was made of the multisource feedback assessment developing collective group insights. While there is no doubt that all groups did engage in some meaningful deeper learning during the module, and some evidence of knowledge management, there is little evidence that this could be classified as ‘wisdom’. If we take the Skyrme and Amidon (1997) schema seriously then the best that can be claimed is that the students reached the knowledge stage (combining information with meaning). However, it would be very difficult to claim that any of the groups discussed in this paper reached the stage of displaying wisdom. Perhaps given their youth and inexperience then it maybe too much to expect undergraduate students to demonstrate real wisdom in their decision-making. A more positive outcome might be that they are at least aware of the need for wisdom and that is a state to which they should aspire in their future decision-making. This raises the question of when do students learn the value of embedding learning inaction and learning from action, and are these insights developed from collective group accounts of activities undertaken. Further research would need to be conducted to explore if this is the value contribution of academic apprenticeships in management education, or would this be the contribution of graduate management apprenticeships.

Within the context of our critically informed pedagogically integrated teaching practice, we observe glimpses of deep learning and critical reflexivity in classroom discussions and assessments, this is then conducive to reflection on teaching o action and teaching reflection in action. The module design combines PBL and WPL to take advantage of the strengths of both as well as the combined synthesis. Both these pedagogies have been used when designing the teaching, learning and assessment process, including the environment and output of the assessment. However, moments are intermingled with deep and surface learning. Unreciprocated in this account is how might this seeming paradox of moments of criticality interspersed with paraphrasing course content and reflection be understood? We reflectively and reflexively explore “what is going on” in terms of our short-term intent to develop the analytical and reasoning skills of our students so they might engage in deep learning, this account has attempted to explore the longer term intent of harvesting deeper learning that is informed by knowledge and transitions the learner from knowledgeable to knowledge-able underpinned by knowledge transfer with glimpses of wise decision making, though not the elusive wisdom.

Management educators endeavour to enlighten the ongoing debate about critical pedagogy (Freire, 1972; Giroux, 1997 and Pratt, 1998), with an emphasis on developing critically informed teaching practice (Dyer and Hurd 2016). Entwistle (2000) advocates educators can differentiate between surface and deep learning, and that through a combination of pedagogical integration through teaching practices, learning styles, classroom processes, and assessment techniques foster different learning experiences (Entwistle, 2000) which can result in a spectrum of knowledge transference to knowledge-able students. Fostering deep learning by critically rethinking the process and content of management education is a passion and focus of many (Bisman, 2011; Boyce, 1996; Boje and Al Arkoubi, 2009; Currie and Knights, 2003; Dyer, 2003; Dyer et al., 2014; Elliott, 2003; Fenwick, 2005a and b; Gabriel, 2008; Mayo, 2003; Reynolds, 1999). Armed with this knowledge and a personal commitment to make a difference, educators attempt to embed critical insight within the context of a business management education (Bisman, 2011; Boyce, 1996) by striving to create a democratic, dialogic classroom space and to take the “nettles” out of the critical education experience (Reynolds, 1999). Should we as academics be making more space to reflect on our own places and spaces for teaching to enhance learning to the same extend that we reflect on the workplaces and space of organisations our graduates are being prepared for. Are we focusing more on the short-term intent of developing analytical and reasoning skills of our management students, to the detriment of long-term intent to develop inclusive knowledge-able students to make wise managerial decisions in their future work environments and be the leaders of knowledge transfer.

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Appendix 1.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **BBC** | **FIFA 1** | **NHS** | **HMRC** | **American Red Cross** | **Environment Agency** | **Ronald McDonald House Charities** | **FIFA 2** |
| Chapter 1 | * Yes. The problem involves the downsizing of the BBC by 1000 employees and what implications that may have for potential tacit knowledge loss.
* SWOT analysis was used to highlight strengths and weaknesses on a micro level.
* PESTLE analysis was used to illustrate the macro problems.
 | * Yes. The overarching issue put forward by this group is that knowledge is held by a few key, high management individuals. With suggestions that they abuse both the power they inhabit and the knowledge they hold with ideologies that are not shared throughout the rest of the organisation; creating divisions.
* Micro was analysed via secondary sources.
* PESTLE was used for macro level analysis.
 | * Yes. The paper reflects on the ‘Baby P’ incident that indicated to the NHS that knowledge management needed to not only be improved but also humanised.
* Secondary data used for micro and macro analysis.
* Problem needed to be highlighted further towards the start of chapter one in a clearer manner.
 | * Yes. The paper suggests that current knowledge management issue that HM Revenue & Customs have at the moment is tax avoidance by MNC.
* SWOT and PESTLE used for micro analysis.
* PESTLE used for macro.
 | * Yes. The paper suggests that the current leadership within the ARC is unsuitable for the role of the organisation, The team highlight Haiti with how local tacit knowledge was missing from rescue and rebuilding schemes. The paper also suggest that poor KM in the past (from 9/11 and Katrina) impacted the KM around Haiti schemes.
* Secondary data used for micro, meso and macro analysis.
 | * Yes. The paper suggests that the main issue is loss of knowledge through redundancies and the management of data.
* SWOT and PESTLE used for micro and macro analysis.
 | * Yes. The paper identifies that RMHC’s KM systems are conveying a brand image that differs from their intention due to the intrinsic link to ‘McDonalds’ as a fast food chain.
* SWOT was used for micro analysis.
* PESTLE was used for macro analysis.
 | * Yes. The paper identifies issues with the external local organising committee who are responsible for World Cup planning.
* The second issue identified was corruption within the organisation. This is the focus of the paper.
* SWOT Analysis for micro.
 |
|  | **BBC** | **FIFA 1** | **NHS** | **HMRC** | **American Red Cross** | **Environment Agency** | **Ronald McDonald House Charities** | **FIFA 2** |
|  Chapter 2 | * The BBC has been questioned within the wider media and individuals as what services should and does it supply as a public broadcaster. Therefore is a current social and political relevant issue.
* Questioning if streamlining an organisation does increase efficiency. If the BBC were to lose 1000 employees, a suitable knowledge management system needs to be in place. Yet, tacit knowledge is difficult to transfer and store. In addition, tacit knowledge could be transferred to competitors.
 | * The paper suggests that by improving knowledge management; a company can improve decision making capabilities and stimulate organisational culture change. A factor, the paper suggests, is vital for FIFA.
* It is also suggested that a few high power individuals creates a barrier to successful KM. Therefore destructive ideologies can become deep-rooted and damage reputation.
 | * Highlights that although knowledge may be managed; what is collected may not be used.
* The use of ‘sweep under the carpet’ management within the NHS.
* Although an online system has been created to share data - staff are untrained or unable to use it. This links to issues with funding and hospital expenditure.
* The NHS is discouraging a learning environment by becoming too focused on public appearance.
* Lack of communications between services leads to incidents such as Baby P.
 | * The paper highlights the issue of using single loop learning approach that prevents KM from developing further and allows MNCs a way to exploit the system.
* Insufficient methods of using tacit knowledge and relying on technology when it is suggested that the majority of staff are untrained to use the system.
* Conflict between tacit knowledge and technology.
* Downsizing would reduce tactic distribution in KM and HMRC has an additional issue of an ageing workforce.
 | * Issues with leadership and management hierarchy combined employment of local Haitians - often these people were only employed in lower positions therefore restricting the flow of tacit knowledge in a centralised system. In addition, many leaders could not speak French or Creole.
* Extremely low productivity (6 homes built in Haiti compared to 2681 by ‘Food for the Poor’).
 | * Issues with communicating ever changing environmental issues with the government.
* Problems with data culture - the EA heavily collects data and is under threat of becoming ‘technocratic’ with not enough emphasis on local, tacit knowledge. The data can also overwhelm leading to misrepresentation and poor KM.
* Poor knowledge distribution to both the government and those in high risk areas.
 | * Potential conflicts of interests between ‘McDonalds’ the fast food chain and RMHC the children charity. Includes issues such as healthy eating.
* Due to the links with ‘McDonalds’ there is a public perception issue where they do not see RMHC as a charity that deserves funding as much as other charities.
 | * Corruption is a high profile issue; The World Bank estimates $1 trillion is paid out in bribes every year.
* Highlights the need to show how non-profit organisations can hide/manipulate profits rather that a for profit.
* Issues with single loop learning and how it can encourage ‘hidden knowledge’.
 |
|  | **BBC** | **FIFA 1** | **NHS** | **HMRC** | **American Red Cross** | **Environment Agency** | **Ronald McDonald House Charities** | **FIFA 2** |
| Chapter 3 | * The team picked up on the need to create and foster knowledge through KMS in addition to preserving.
* They also noted the impact of organisational and overarching culture that may impact KMS.
* Used an example of aerospace to demonstrate how removing tactic knowledge can impact core mechanics of a company.
 | * The team clearly split up the problems and created a solution that embraced the need for a cultural change within FIFA.
* Academic literature was often used to back up findings - including adapting existing models.
 | * The team placed communication as the overarching theme to overcoming KM problems. Suggesting the implication of a triple loop system rather than single.
* They have also noted the role in the NHS to create systems internaly to understand nuances of healthcare and its staff.
* They also noted that most of the infrastructure is already there and that the staff need to be (re)trained and/or made aware of its existence,
 | * The team has highlighted policy change, investing in KM and increased training in technology as key areas.
* Understood and explained that it may be difficult for staff to change current working practices; but suggested methods such as incentives and continual support to overcome this.
* HR needs a larger role in circulating stories from staff.
* Increase confidence of technology through training. Suggests that this may encourage taxpayers to pay the correct level of tax.
 | * The need to create a knowledge sharing culture by changing organisational practices.
* Develop double loop learning and acknowledge failures.
* Integrate KM with policy making.
* Introduce an ability motivation system that creates a more flexible organisational structure and allow greater tactic knowledge flow.
 | * Integrate virtual teams, communities of practice and intranet systems - Importance place on the need for the intranet to only be an archiving system to avoid bloating data collection.
* Create human centred KM - shift from technology focused to human knowledge.
* Implement double loop learning
* Tailor communication to those in high risk areas to avoid ‘clutter’ and ‘noise’ and present an authoritative voice.
 | * Improve internal KM management and be inspired by the external KM efforts. Establish knowledge sharing communities of practice.
* Improve learning and development to increase shared tactic knowledge. However this can be costly for a charity.
* Investment in technology, in particular within social media as this will create a method to turn tactic knowledge into explicit; however will need to be mindful of information overload.
 | * Increase transparency - to overcome single loop learning and encourage knowledge to flow and be more accessible.
* Culture - It has been suggested that FIFA inhabits a culture of corruption and needs a gradual unlearning of bad practices.
* FIFA Council - Employ a new members for a restructured council to encourage growth of new tactic knowledge.
* Governing Body - To help with establishing standards in conjunction with an increase in technology to monitor KM and encourage double and triple loop learning.
 |
|  | **BBC** | **FIFA 1** | **NHS** | **HMRC** | **American Red Cross** | **Environment Agency** | **Ronald McDonald House Charities** | **FIFA 2** |
| Chapter 4 | * Increase use and introduce new and advanced IT systems and virtual learning environments. This would encourage collaborative sharing and the capture of unique ideas by the staff.
* Tacit knowledge could be converted to explicit knowledge via blog post, publications, podcasts etc. Providing a virtual space could encourage this transition with a method that is more suitable for the creator.
* Empowerment of lower staff.
 | * Reconfigure FIFA ethics and training and pinpoint periods of ‘cultural collapse’. The team used MCI as an example to suggest why this would be ideal for FIFA.
* Appoint a chief Knowledge Officer. The team clearly suggested how this position is normally held i high regard at the start - but is then underfunded and isolated.
* System Oriented KM strategies - The team refers to Takeuchi’s (1995) SECI model.
* Corporate restructuring.
* Turn FIFA into a for profit organisation.
 | * A culture change is needed to move away from the ‘sweep under the carpet’ management.
* Greater emphasis on ‘task culture’ to reduce individualism and provide self checks.
* Promote a learning culture to show that failure is not always negative.
* Change in management - starting with HR who can aim to recruit employees with a strong team mindset.
 | * Improving policy - embrace a unitary tax system similar to the USA. This would allow a system to formulate a percentage of revenue a TNC has in the UK; therefore potentially eliminating tax avoidance because revenues cannot be misrepresented
* People & Tech - Introducing a unitary tax system would place extra strain upon HMRC and measures to integrate double and triple loop learning is a priority to encourage sharing tactic knowledge and increase confidence in new and advanced tech.
 | * Short term focus groups - Understand employee learning styles. Reports from focus groups can be stored as explicit knowledge for future reference. Also provides a platform for local knowledge transfer.
* Rewards & Incentives - Aid in reducing employee turnover and nurture double loop learning.
* Introduce an ability motivation system that creates a more flexible organisational structure and allow greater tacit knowledge flow.
 | * Double loop learning strategy - Use employees with suitable personality traits to foster a culture where errors are learnt from.
* Interorganisational communications strategy - Increase the use of technology, such as messaging boards, however invest half of the tech total spend into supporting knowledge creation.
* Pragmatic training for tactic knowledge - Increase ‘hands on’ training.
* Public Information dissemination stratgy - Consider the role in which social media plays for the EA and how to run it more efficiently to disseminate alerts.
 | * Adopting communities of practice allows informal groups to emerge, sharing knowledge and attracting new members.
* Setting up a new online network for communication - a more cost effective method for a charity.
 | * Improve relationships with external stakeholders and allow external transparency auditors.
* Reduce the size of the FIFA board and recruit new personnel to aid unlearning of previous culture.
* Creation of a governing body to provide additional checks.
* Culture change - inhabits the previous points and suggests that the new president of FIFA is crucial to KM systems and the need to relinquish power from select individuals.
 |
|  | **BBC** | **FIFA 1** | **NHS** | **HMRC** | **American Red Cross** | **Environment Agency** | **Ronald McDonald House Charities** | **FIFA 2** |
| Chapter 5 | ‘Knowledge’ The group went beyond the BBC organisation to consider how loss of tacit knowledge impacted another industry and considered how something similar could influence core management within the BBC. They have also gone beyond primary context by explaining different types of knowledge are formed and how these have to managed differently - this was back up by academic theories in addition to examples.  | ‘Knowledge/Wisdom’ (methodology) The group encountered some problems while applying a Belbin model to their team structure while not fully realising how it works. There were also clashes in ideologies. However, the team did recognise these and presented a thoughtful analysis of the issues and how they could work better in the future. The work on FIFA however would probably lie more towards ‘Information/Knowledge’.  | ‘Information’Although the team recognised issues within the NHS that were context specific. More in-depth analysis on macro issues probably would have resulted in a greater appreciation for external pressures the NHS is under both at the present time and future. In addition, failure in healthcare can result in fatal consequences; the paper needed a greater sensitivity to the management of healthcare, how failure can be monitored and the impact on the professionals who ‘failed’.  | ‘Knowledge’The team reflected on the issues of the Belbin model and tailored it to their needs. They also considered the strain that macro influences have on HMRC, however at times they tended to rely on multiple models to try and explain an idea rather than being reflective and tailoring their research.   | ‘Information/Knowledge’The team acknowledged the issues that the ARC currently possess and placed it in context with using Haiti as an example.  | ‘Information’The team reflected well on their effort as a team however the body of the paper did not go beyond placing information within a context.  | ‘Knowledge’The team reflected well on the way RMHC has intrinsic conflicts with ‘McDonalds’ as a brand identity. The team also tried various methods to test how they could work as a group and noted when surprising elements appeared and integrated these into the group development.  | Information/Knowledge’The team acknowledged issues FIFA currently have, yet more could have been done to link in KM specifically to the problems raised. Interestingly the team mentioned the lack of women employees in FIFA within chapter 1; yet did not expand on this during the rest of the paper of how this may impact KM. More macro impacts could have been analysed. |
|  | **BBC** | **FIFA 1** | **NHS** | **HMRC** | **American Red Cross** | **Environment Agency** | **Ronald McDonald House Charities** | **FIFA 2** |
| Chapter 6 | The group embraced IT solutions that they suggested within their analysis for the BBC to overcome personal issues they may have had meeting up. Yet they still placed emphasis on face to face meetings; again sharing tactic knowledge between themselves and turning it into explicit through publicised minutes and message logs. Overall, a clear traditional hierarchy was established and the group appeared to share a coherent ideology that came through in the writing.  | * Used Belbin Model - however a few of the team members were not familiar with the system and this created conflicts in knowledge management.
* They relied on one team member to gather information - although they did not doubt his ability, the team recognised that the information collected may not reflect the whole teams’ ideologies.
* Appears to be differences in how the team members approached FIFA as an organisation. However they all appeared to pull together to create the paper.
 | * Used the ‘World Café design principles’ - in particular acknowledged the impact of space and the environment when they gathered for face to face meetings.
* This was supplemented by social media, in particular the notion of becoming ‘friends online’ to understand how the other team members’ lives were organised and set up suitable meeting times.
* Highlighted how because they were familiar with the work - that they spent too much time discussing similar topics and probably needed agendas and better time management.
 | * Used Belbin model as a basis but moved away from the ‘rules’ ascribed to the practice as they argued that the research was over two decades old and probably did not reflect the needs of today.
* They recognised their weaknesses and issues with trying to fit team members into roles they were not suitable for.
* Applied ‘World café principles.
* Turned from single to triple loop learning and created explicit knowledge from tacit by using minutes and online messaging.
 | * Used Belbin.
* Took into account the overwhelming extrovert bias within the group and how that impacted knowledge sharing/creation. Used MBIT
* Reflected on the need for both face to face contact and the creation of an online community to share their ideas.
 | * Belbin used but later rejected due to the group considering the structure to be outdated for their needs.
* Used MBIT to compensate for the shortfall of Belbin.
* Extensively used online platforms for collaborative working and organising.
* Appreciated how different personalities brought different facets to the team.
 | * Used Belbin, SWOT and MBIT to assign roles.
* Used Johari Window Theory to understand how other team members perceived each other.
 | * Used VARK questionnaire to divide roles - although the team were skeptical to its usefulness.
* Rejected Belbin due to team members fluid roles within the group.
* Appreciated the impact of space and place in setting up face to face meetings.
* Engaged in double loop learning to overcome issues they had during the presentation before writing the report.
 |