Assessing Job Performance of Video e-learning Content Authors and System Providers

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Abstract—Studies in e-learning tend to focus on benefits gained by consumers. In this paper, the authors present data from UK universities on how content authors of e-learning materials have also benefited from having produced such materials. Particularly, a video recorded once and then made available for playing back endless of times, free of restriction of time and place, increases reach, and heightens educational value. However, our findings show that in many cases particular organizational policies and technological configurations are required to support coherent ways for the users to playback such materials. Applying job performance factors on the two groups highlights some gaps in management provision for new technologies. A sense of personal achievement, however, can outweigh the time and pressure they have faced to fulfil their tasks.

Index Terms—Job performance, university, leadership, management, video e-learning materials.

I. INTRODUCTION

The need for a video infrastructure to support teaching and learning, research and marketing triggered discontinuous or disruptive innovation processes [1-8]. Csete & Evans [9] wrote about using developers and project managers in introducing e-learning. Hardaker & Singh [10] wrote that institution mechanism (macro level) and human agency (micro) were interlinked in the adoption of eLearning in UK universities. Both concluded organizational strategy and manager’s support are important factors for success.

External suppliers identified a new market in e-learning created new enterprise and desktop software applications. Internal system providers created new internal markets equipping classrooms and infrastructure to support users. Further innovations occurred, e.g. lecturers using video for assessment, and screencasts supporting quiz-type interaction [5, 11]. Such discontinuous and disruptive innovations in video infrastructure technologies benefit universities when they have “run out of road” (e.g. lack of large lecture rooms or student visa issues). Universities can maintain their competitive edge using such new technologies to virtually operate 24x7 anywhere. However, innovative vendor-university collaborations show a wide knowledge gap, and innovation is in fact much lower than expected [12, 13].

Kaplan & Norton’s Strategy Maps [14] provided a useful framework where human capital and learning (assets) were directly linked through value-creating (internal) processes to customer value proposition (products/services) and also financial perspectives. At an organization level, Gratton’s [15] study on democratic models explained how employees shared vision played a significant part in the success of several UK large corporations amidst changing market and legislative conditions. Key qualities included supporting diverse qualities of employees, where they were treated as investors who actively contributed to the success of the employer, and where individual liberty was held on a balance with respect amongst employees. Hamel & Breen [16], also supporting democratic principles, went further in promoting management “learning at the fringe” – the creation of “Management 2.0” that bore characteristics of Web 2.0: particularly openness, low cost, and decentralization.

Organizational learning is a key aspect for organizations to continue to innovate [17-22]. McElroy [23] explained the Second-Generation Knowledge Management thinking to move away from technology-centric 1st-generation to one that was more inclusive of people, process, and social initiatives. A significant contribution was the stress on how knowledge was created and maintained, which influenced organizational learning and innovation.

Job performance is closely linked with motivation, job satisfaction and job autonomy [24, 25]. Some domain-specific studies are available, e.g. nurses [26, 27], librarians [24], and salespersons [28]. This paper builds on earlier work on academic and IT staff (system providers) in university management [8, 29, 30]. Video work, whether in filming and editing, or system provision, demands innovation creating new technology and new market segment, requiring new processes and updated pedagogy. Organizations that support high performance team / work practices [31], high-involvement innovation [1], fringe management style and democratic principles [15, 23] have workers more likely to undertake such innovation. Given importance of strategy and manager’s support ([9, 10]), Joo [32] found that job performance increased with leader-member exchange quality and organizational learning. Workers cognitive engagement with their job mediated their job passion which increased job performance [34, 35].

II. DISCUSSION

The ethnographic data were collected from 15 academic staffs in three categories of educational institutions in the United Kingdom: Distance Learning (DL), Red Brick (RB) and New University (NU)\(^4\), in years 2011-13.

\(^4\) The Student Room (http://www.thestudentroom.co.uk/wiki/types_of_university, last accessed 15 Mar 2014) classifies UK universities in 9 categories. Our participants represented all except the Recently Created and Colleges of Higher Education.
Further ethnographic data were collected from 18 system providers in most categories of universities over the same period. The data were collected using semi-structured interviews in ethnographic conversations. I prepared a few questions to aid me in the conversations. Conversations focused on 3 topics: learning, supportive culture and job performance.

A. Academic staff

A majority of the academic staff from the DL institution found that they had learnt a great deal from the experience of planning and creating video-based teaching materials and felt that the learning had enhanced their job satisfaction. They considered such endeavor an integral part of their job to undertake learning.

Academic staff of the RB institution had a similar experience in engaging students in learning. They expressed that learning in planning and creating video-based materials did not enhance their job satisfaction. They had little motivation to learn when these skills had to be acquired mostly outside their normal work load. The academic staff of the NU institution also had a similar perception. Academic staff of both categories did not consider that it was part of their job to undertake the learning.

DL academic staff responded that their department and other collaborative units fully supported them to produce the videos and set up and maintain the video systems including the provision of time, space, equipment, support staff and training. RB and NU academic staff indicated that they had less support unless it was a specifically-funded project for such materials to be produced.

There was evidence that DL had provided the participants expert advice and support in equipment, filming and planning. However, the participants of the RB and the NU expressed that they had to make greater effort to obtain expert advice and support.

It seems that most of the academic staff demonstrated flexibility with their work time to carry out the video work. Whereas the counterparts in the RB and the NU did not consider too much flexibility with their teaching and preparation time to carry out the video production; they were done mainly outside the term time, or in vacation.

Concerning the provision of sufficient leadership by their department on enabling them to plan their work and to undertake the full extent of their work to completion, a majority of the academic staff of all the categories did not consider that they had sufficient leadership to engage to the full extent of the video work; their own motivation and determination on the completion of the work played an important part for their success ([9, 10]). They often sought support from groups outside their department to provide sufficient leadership on enabling them to undertake the full extent of their work to completion.

DL academic participants disclosed that there were other colleagues in their institution who were undertaking the production of videos for teaching and learning. There were communities of practice for the production of podcasts and video-podcasts (vodcasts) within the institution, where the members of the communities met monthly or bi-monthly for exchange of ideas, innovations, sharing tips and advice. There were support groups including online ones in their institution that they were able to turn to for help, tips and advice [27]. As for NU academic participants, there were very few communities of practice for the production of podcasts and vodcasts. Those who undertook the use of such learning materials felt that they were lone rangers trying hard to evangelize other colleagues. RB academic participants unveiled that there was some superficial support, but they felt that such support was inadequate and regarded as “paying lip service.”

All the academic staff across the three categories found that it was important to have managerial input, with managerial supervision support on a day-to-day basis. It was crucial to receive managerial support of the level of departmental head. It was important to provide continuous managerial input periodically if not on a day-to-day basis. All academic staffs said they had some idea of MOOCs, but admitted insufficient knowledge and unable to evaluate its benefits of in teaching or learning.

Most of the academic participants across the three categories considered what they had learnt fulfilled their job in the sense that they were motivated to produce the vodcasts for the purpose of enhanced learning [25]. However, user education was an important factor in the increased use and value of materials. They admitted being highly initiated to source a wide range of their learning materials to develop skills to produce their vodcasts [20].

The data suggested that personal achievement outweighed the frustration and the extra time and pressure they experienced in order to fulfil their tasks.

When applying job performance factors on the academic staff, the data revealed wide gaps in management provision for new technologies. A majority of the academic staffs were frustrated by particular organizational policies and technological configurations, as the vodcasts required them to support coherent ways for the users to playback such materials [7]. Such new challenges caused new ways of working and cooperation between providers, creators and other contributors and partakers including editors and copyright officers.

B. System providers

All system providers responded highly on the necessity to learn new knowledge in order to support a video production infrastructure. Although universities with existing experience in this domain were expected to have less new experience to learn compared to other universities new to this activity, two factors were identified that resulted in the fact that all participants gave high rating on learning. The first factor was that few enterprise-level video solutions existed: their proprietary nature resulted in high levels of learning. This was also the case when solutions were extended and upgraded. Changed solutions often caused changed policies and frustration to academic staff.

The second factor was due to changes in video format standards which were related to operating systems, browsers and their own versions, in-browser players, and video format licensing. Older video solutions used

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b Massive Open Online Courses, for further information see e.g. http://www.techopedia.com/definition/29260/massive-open-online-course-mooc, last accessed 15 May 2014
QuickTime\textsuperscript{d}, Flash Video\textsuperscript{d} and RealMedia\textsuperscript{d} formats. In recent years, mp\textsuperscript{4} gained wider popularity. This led further to increased standardization where by middle 2013 a large number of operating systems and their compatible browsers supported mp\textsuperscript{4} or Flash formats natively or with the use of an in-browser player such as Flow Player\textsuperscript{b} or JW Player\textsuperscript{b}.

The developments within Open Source Initiative\textsuperscript{1} led to equal or increased popularity for open-source formats such as webm\textsuperscript{1}. This was also influenced by the forthcoming HTML5 standards\textsuperscript{5}. Proprietary video solutions were inflexible in adapting to such standards. Participants claimed they faced difficulty in adapting such solutions to support new file formats and browsers. Participants said that extended learning has become necessary to tweak these systems to work with additional file formats, or attempted to find alternative sometimes interim solutions to work along or replace the proprietary solutions. Social platforms such as YouTube and Vimeo are increasingly popular; however, many system providers revealed that these are used along with another on-site service provided by the university in order to support better management of the video files, branding as well as analytics.

There was no clear pattern between the types of the university in the data compared to that from the academic staff. While a DL institution was able to keep pace with latest development in video infrastructure, participants also spoke about difficulty in maintaining long-term support from academic staff when the system was seen to be undergoing changes frequently. NU institutions participants admitted to increased opportunities in funding compared to other university types, through in some cases organizational policies had not been adapted to ease the new or upgraded infrastructure.

A complex picture emerged in relation to supportive culture provided by the department and a support or expert group outside of the department but within the university. A majority of participants found insufficient supportive culture from their department. They attributed this mostly to senior managers lack of understanding of the complexity of video infrastructure (e.g. the need for streaming, categorizing) [32].

Participants said new ventures in big data solutions [33], e.g. MOOCs, require managers grasp of benefits and scale of impact of implementation. It is best for managers to perceive this in the long term to evaluate investment in infrastructure and knowledge against teaching and learning objectives. Institutions that progress in this direction often have a business case on economies of scale with a significant increase in international distance learning students or executive type courses, along with multifold increase in system architecture, but with comparatively insignificant increase in estate.

Participants also explained lack of funding for travels to workshops and conferences, and conference and accommodation fees, was a key hindrance to their learning. Learning was largely in “small chunks” and disorganized, comprising of finding information on the internet whenever the participants found spare time [20, 34, 36].

However, participants highlighted major ventures introduced by their respective universities which created a supportive culture. Examples included installation of lecture capture equipment in lecture halls, and setting up an area of the university web site that had similar look and feel to the YouTube video sharing site. This supportive culture brought about many opportunities for attending training courses, workshops and conferences in positive events organized by STEEPLE\textsuperscript{1}, and vendors. All participants said that these events were useful for networking and forming alliance to negotiate with vendors on product pricing and contract terms, and to some extent with open source movements in relation to video formats. Participants also noted that such a supportive culture can be short-lived especially if budget was limited by scope (e.g. selected first-year subjects) or duration (e.g. student recruitment for a specific year) or type (e.g. recorded by webcam).

When considering supportive culture from a support or expert group outside of the department but in the university, less than half of the participants were able to name such a group in their respective institution. Other groups existed but their roles were limited to their respective departments. Participants who benefitted from such groups claimed in some cases the supportive culture gained there far outweighed that in their department.

Turning to job performance, most participants described the challenges and achievements in positive terms. This data implied they experienced satisfactory or high job performance in their work to establish and support such video infrastructures. This was a surprise since these participants had had little resources to support learning, and made significant personal sacrifice to create and maintain a supportive culture in order to do their work. The data supported the notion that job autonomy and motivation clearly contributed to job performance [25]. Many participants gained supportive culture by keeping regular contact with individuals in other institutions undertaking similar work.

Job performance is closely linked to innovation [37]. Setting up a video publishing and dissemination infrastructure is an innovation. Participants described linking different systems together to create a 24x7 end-to-end infrastructure that required no human intervention. A majority of them admitted having had harmonious and obsessive job passion [34] in different periods of their work. Using Leung, Chan & Chen’s [38] study on job stress on construction project managers. We identified a pattern in our data where job stress could affect relationships, likely causing decreased job performance.

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III. RECOMMENDATIONS

Academic line managers should perceive the concept of the production of vodcasts for learning in the appraisal of job performance not simply in term of face-to-face hours. Line managers should consider the job performance of academic staff with a workload model to include the production of vodcasts [32]. University policy makers should promote organizational learning and best practice policies, e.g. to support communities of practice, workshops, conferences, sourcing of equipment, intellectual property rights.

Many academic staffs undertake their teaching duties with a high level of democracy and autonomy [15, 24, 39]. With technologies moving at a fast pace, university leaders should enhance their strategy where academic staffs have the support and leadership to gain the knowledge and skills, and the time and space, to engage in the production of vodcasts, and newer pedagogies. Universities should continue to promote a good degree of departmental autonomy (decentralization [16], democracy [15]), despite the increasing requirements for management metrics, so that the knowledge and production of vodcasts and similar hi-tech materials could be decoupled from other forms of administration and treated as knowledge work central to knowledge transfer [13, 23].

Job description for system providers should include a significant element of gaining knowledge through own research as well as collaborating across their own institutions and beyond. The fact that system providers learn new knowledge quickly should not be taken lightly as participants revealed that such learning is often done under stress. Studies by Csete & Evans [9], Wong & Mann [7, 8] highlighted the need for increased leadership and management provisions. A strategy that supports technology enhanced learning by including the role of system providers and academic staff will be useful for senior managers to turn these into departmental policies.

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