

A Critical Analysis on the Evolution of E-Learning

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Learning has become a key variable in an age where businesses are embracing the notion of gaining strategic advantage through knowledge and innovation. I will argue, however, that newly proposed e-learning practices do not adequately create an environment conducive to the process of innovation. This article begins with an exploration of the evolution of e-learning, followed by an overview of current organizational philosophies on the importance of knowledge and innovation. The current trend towards managing e-learning environments is then assessed from the perspective of supervision theory and its potential impact on organizational learning. Stemming from studies on groupware, I conclude with cautionary words on current e-learning practices and the possible effects on organizational acceptance.

THE EVOLUTION OF E-LEARNING

Although many specific definitions of e-learning exist, incorporating notions such as asynchronous and synchronous information flow, for the purpose of this article it will suffice to envision e-learning broadly. In its simplest definition, e-learning is the dissemination of educational material through the Internet, an intranet, or extranet. Early forms of e-learning were generally the result of existing training material being transformed into an electronic medium. Industry hype surrounding this new approach to learning was quick to point out its benefits. Citing its flexibility, self-pacing capabilities, and enormous cost savings in comparison to traditional instructor lead training courses, e-learning was placed on a pedestal promising to revolutionize education in the work place (Little, 2001).

As e-learning began down the path of maturity, criticism did however emerge. Critics pointed out issues such as isolation and the importance of social interaction in the context of learning. McAdam and McCreedy (2000) for example, illustrated the limitation of learning in isolation from the perspective of the scientific knowledge construction paradigm. If the notion of "knowledge is truth" is adhered to without allowing room for social interpretation, they argued that only minimal benefits of learning will be achieved, resulting mainly in increases in efficiency rather than creating the necessary environment for creativity and innovation. High importance has also been associated with learning networks and their ability to stimulate innovation at an organizational level (Peters, 1992). Moreover, studies have shown that learning from colleagues is the most crucial method of learning at work (Paulsson & Sundin, 2000). Further criticisms on the initial developments in e-learning were directed at the inability to generate measurable results and the difficulties in assessing learner performance.

In an attempt to address the criticisms surrounding both isolation and evaluation, new e-learning systems have emerged. These systems, often called Learning Management Systems (LMSs) include virtual learning communities comprising of chat rooms and discussion boards that are meant to reduce the isolation imposed by traditional e-learning approaches (Blunt, 2001). Automated evaluation and tracking functionality have also been incorporated into LMSs, providing management with the ability to review an employee's learning progress as well

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as their learning module selections. Current suppliers of LMSs boast increased control and transparency on e-learning investments. But what are the implications of monitoring employees in a learning environment? Particularly in an age where creativity and innovation are considered-critical factors in the quest for competitive advantage, what will be the effects of tighter supervision on learning? These are the key questions that will be addressed in the forth-coming argument. However, before assessing e-learning from the context of supervision, it is important to explore the relationship between organiza-

tional learning and innovation in today's business environment.

KNOWLEDGE AND THE ORGANIZATION

The phrase "knowledge-based economy" has been often quoted when describing the current context of the business world. Knowledge has been judged a critical asset for organizations wishing to survive in the global market place (Lee & Has, 1996). Coupled with this new economic emphasis, is the notion of innovation. This emphasis on innovation, however, is not limited to technical or product advancement but also includes, for example, more imaginative forms of management process or new discoveries regarding synergy in the workplace (Lefebvre et al., 2001). Learning is paramount under these new economic conditions as it lays the foundation for knowledge construction. According

to Gurteen (1998), creativity and innovation evolve from the acquisition and application of new knowledge. It therefore follows that in today's market place, companies should attribute importance to the process of learning. This sentiment is echoed by Glass (1998) who suggested that the strength of an organization is measured by the amount of knowledge vested in its employees. Within the context of knowledge

and innovation, it is also suggested that organizations should place great significance in the practices and experiences of their employees. Ensuring the intersection of learning and existing organizational knowledge is seen as a principal component for the success of a firm (Wenger, 2000; Taylor, 1998).

A current report indicated that the e-learning industry is becoming commodified (Adkins, 2001). The report suggested that due to the high costs and complexity of developing e-learning material, some companies are opting to purchase off-the-shelf learning modules. Competitive advantage cannot be gained through the sole consumption of these commodified goods. In light of this commodification, it is important to ask how e-learning can create value for an organization. Some value may indeed be attained through the mere acceptance and assimilation of training material, but as previously illustrated, current industry trends suggest that organizations should seek to transform knowledge into creativity and innovation. Although not all recipients will be expected to induce innovation from e-learning material, within certain environments, proponents have suggested that e-learning is intended to stimulate creative and innovative thought. An assessment of whether the industry proposed tools for managing learning environments adhere to this suggestion will be addressed from the perspective of supervision.

SUPERVISION

Although advanced technology and supervision are redolent of an Orwellian nightmare, where "Big Brother" lords over society with sophisticated surveillance tools, this article does not approach supervision from this philosophical standpoint but rather grounds its argument in social and economic theory surrounding monitoring and motivation. This section of the article entails an overview of organizational theory from this perspective.

Agency Theory

Founded in neoclassical economics, agency theory evolved through the works of individuals such as Coase (1937), who contended that authority formed the root of motivation and that a master-servant relationship is inherent within a working environment. The belief that managers receive incomplete information regarding employees' work effort led to the use of monitoring mechanisms to deal with this discrepancy (Barkema, 1995). For example, observing performance (monitoring) is used as a determinant of an employees pay, or could lead to dismissal if performance is deemed substandard. Numerous

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studies, however, have demonstrated the inconsistency between pay and performance (Warner et al., 1988; Gilson 1989). As a consequence, it has been argued that agent theorists could learn from noneconomic disciplines when considering the causes of motivation and the effects of monitoring (Baker et al., 1988). Arguments similar to this were the basis of further analysis on supervision and the consequent introduction of Social Exchange Theory.

Social Exchange Theory

Social exchange theory stems from work conducted by both Homan (1961) and Blau (1964). The central theme in social exchange theory surrounds the idea of trust, loyalty, and recognition, in relation to work effort. The theory suggests that when principals demonstrate the former attributes to their workers, the latter – work effort – will be given in return. The theory continues by claiming that trust and loyalty evolve over a period of time, coinciding with the development of the relationship between the principal and the worker (Blau 1964). Under the notion of the social exchange theory, the effect of monitoring is detrimental. Monitoring is considered a breach of trust by the worker and is responded to by a decrease in work effort. Other significant theories have subsequently been formalized that incorporate both the Agent Theory and the Social Exchange Theory.

Supervision Theories: Merged

Williamson (1975) furthered the debate on the effects of monitoring in the work place through discussions on “atmosphere” and the structure of an organization. Williamson used the word “atmosphere” to encompass the principle themes held by social exchange theorists, namely trust, loyalty and recognition. Williamson argued that “atmosphere” has little effect when the principal and worker are in different physical localities. It therefore followed, according to Williamson, that the negative effects of monitoring, pointed out by social exchange theorists, may be negligible or perhaps even nonexistent. He concluded by indicating that in circumstances of different physical locations, monitoring in fact represents an effective tool in manipulating increases in work effort.

In keeping with the social exchange theory, Williamson continued his discussion by indicating that monitoring may have a negative influence on work effort when social exchange contracts exist. Under circumstances where principals and workers are in close and frequent contact with one another and a relationship is well developed, monitoring may infringe upon the social bond, resulting in

detrimental effects on work effort.

Further contributions to the limitations of agent theory can be found in the writing of Bruno Frey (1993). Frey concurred with Williamson by asserting that work avoidance or effort cannot be solely controlled by monitoring, and that under certain conditions, monitoring can have negative effects on work effort. He categorized his theories using two terms, the “crowding out effect” and the “disciplining effect.” The former summarizes the detrimental effect that increased monitoring has on work effort, due primarily to the introduction of mistrust in a relationship where a psychological contract exists. The latter refers to possible increases in work effort, attributed to monitoring, which may be seen in situations where relationships are abstract.

Empirical evidence substantiating Frey’s theory of the “crowding out effect” as well as Williamson’s parallel conclusions, can be found in the works of McGraw (1978), as well as in Deci and Ryan (1980). Their works led to the discovery of what was coined the “hidden costs of reward.” It was discovered that when extrinsic rewards were introduced and people approached a task for its own sake, negative repercussions were discovered on an individual’s intrinsic motivation. In conjunction with this discovery, further tests demonstrated that if the extrinsic rewards diminished, a smaller percentage of a task would be performed. In relation to Frey’s theory of the crowding out effect, a practical illustration of this evidence could be presented as follows. If an employee is extrinsically rewarded through a trust or bond that exists between himself and his manager, the introduction of monitoring, which could be perceived as a breach of this trust, or a reduction of this extrinsic reward, could, in turn, “crowd out” the employees efforts at work.

Studies conducted by Deci and Ryan (1980) also shed light on two particular conditions that may lead to a decrease in work effort when monitoring is introduced. The first condition occurs when an individual feels that their ability for self-determination has been hindered. Under this condition, an individual will substitute her intrinsic motivation for extrinsic control. The second condition stems from the notion of self-evaluation. If an individual perceives a loss of control in his or her ability to self-evaluate his or her work, the employee’s intrinsic motivation may decrease. In this scenario, an employee views monitoring as an indication that his superior feels that he/she is unable or unwilling to perform a task at a satisfactory level.

Frey further explored the conditions of self-determination and self-evaluation in the context of the type of work an employee performs (Frey, 1993). It is argued that jobs that entail elements of judgment and intuition are more likely to reap negative effects on self-determination and self-evaluation when monitoring is introduced. In contrast, jobs that are simplistic or mundane will not encounter these negative effects under the context of monitoring.

Frey's concept of the "disciplining effect" is an extension of agency theory (Frey, 1993). Frey argued that monitoring may in fact lead to greater work effort, however, this occurrence happens only in situations where the relationship between the principal and the agent is weak. This theory reiterates that of Williamson (1975). Econometric evidence to support Frey's discipline effect can be found in the works of Barkema (1995).

Central in the works of Williamson and Frey is the existence of a relationship based on trust, loyalty, and recognition between the principal and the agent. For the purpose of this article, it is important to explore what is meant by this relationship and under what circumstances such a relationship may arise. Narrowly interpreting this relationship as being solely constructed between two individuals, namely an employee and supervisor, fails to capture the scope within which the theories of Williamson and Frey exist (Frey, 1993). As pointed out by Akerlof and Yellen (1986), positive sentiments towards an organization by employees often arise. Furthermore, it has been observed that employees take pride in their work, and have demonstrated strong loyalty towards the organization for which they work (Simon, 1976). This evidence suggests that employees don't form relationships, under which trust and loyalty become key elements, only with other individuals, but rather that these sentiments exist between employees and an organization as an entity in itself. This notion of organizational loyalty brings us to the topic of motivation, my final area of concern before discussing the outlined theories from the context of managing learning environments.

Motivation

Although a thorough analysis of motivation theory is beyond the scope of this article, an overview of motivation in relation to organizations is important in our understanding of the impacts of supervision. Two opposing informal theories, Theory X and Theory Y, have been discovered on management's perception of human nature (Statt, 2000). As summarized by

McGregor (1960), Theory X assumed that people are irrational and incapable of self-discipline or self-control. Theory Y, on the other hand, holds that people are self-motivated and desire individuality in the work place. Furthermore, control and external incentives are perceived as undesirable (McGregor, 1960). Although Theory X dominated managerial behaviour in the 20th century and is still prevalent today, there has been a recent shift towards Theory Y within organizations (Statt, 2000). Which of these two theories holds greater currency becomes an important question when considering the role of supervision and monitoring in organizations.

Theory X and Y personalities are reviewed more thoroughly in the works of Herbert Simon (1991). Simon posed the question of why empirical evidence has shown that individuals have a tendency to exhibit more work effort than is stipulated in an employment contract, a contract devised for supervisory enforcement. Although Simon conceded that authority, such as that inherent in an employment contract, does contribute to employee motivation, rewards and organizational identification are more influential factors. Furthermore, Simon stated that rewards as a sole means of motivation has limitations (also see Kohn, 1993) and that it is organizational identification that reveals the strongest motivational mechanism. Support for Simon's theory on organizational identification can be found in work done by Granovetter (1985) who coined the phrase "social embeddedness" to concisely epitomize the idea of organizational identification. Coleman (1990) further discussed this idea in what he termed "conjointness." Principle in Simon's discussion on organizational identification is the notion of society. It is argued that as humanity is dependant on the survival of their "immediate and broader surroundings," employees will respond by forming loyalties to their organization (Simon, 1991).

For the purpose of my discussion involving managed learning environments, I would like to point out one other key finding from the works of Simon. Although not limited to this manifestation, he contends that organizational identity can evolve from inculcation of organizational mantra by the enterprise itself (Simon, 1991). To spawn, this evolution requires an element of docility on the part of the employee. The strength of organizational identity then becomes contingent upon the extent to which the organizational decree is induced upon its members. This will be dependant on societal or organizational norms. Citing variations between Chinese and Japanese culture, Simon exemplified this point by indicating that identification with the

family takes precedence over an organization in Chinese society. Conversely, the opposite holds true in Japanese society. This concludes the overview on supervision and motivation theory. These perspectives will now be assessed in the context of managing e-learning environments.

SUPERVISION AND THE MANAGEMENT OF E-LEARNING

The concept, as well as the software that enables the management of e-learning environments, is in its infancy. As such, the terms and definitions currently used tend to be rather ambiguous. Learning Management Systems (LMS), Managed Learning Environments and Virtual Learning Environments are all phases commonly seen in literature surrounding the management of e-learning. For the purpose of this article however, it is not important to wade through this ambiguity but rather to extract some of the recurring themes that are promised from the developers and proponents of these new tools.

Central to this discussion is the use of LMS to monitor the activity of employees in an e-learning environment. As outlined by Harvi Singh (2001), LMSs are intended to be used to "track learners' bookmarks, annotation, progress and test scores" for reporting purposes. The ability to harness such information is seen as beneficial in relation to capturing knowledge (Brennan, 2001). Another key characteristic of LMSs are that they centrally manage learning content, allowing global organizations to avoid content development redundancies both within and across regionally disperse offices. The final feature of LMSs that will be addressed in this article is the inclusion of virtual learning communities. Present in the form of discussion boards or chat rooms, these communities are included to address the importance of peer-to-peer knowledge sharing as a means to enhance the application of base learning material (Blunt, 2001). Drawing from theories on supervision in the work place, issues that organizations should tackle when considering the implementation of LMSs will now be addressed.

From the evidence set forth by both Williamson and Frey, we are told that monitoring will have negative effects on work effort if a relationship consisting of trust or loyalty has been established between a principal and an agent. If we approach this finding from its simplest interpretation, we can conclude that implementing an LMS where management becomes the recipient of the tracking reports generated from the system, and that management and subordinates have a personal relationship where "atmosphere" exists, negative repercussions to the usage

of the e-learning environment will transpire.

As pointed out earlier, one of the key characteristics of LMSs is its centrality of management, so it is conceivable that a body independent of other managerial functions would assess the monitoring results. Continuing with the works of Williamson and Frey and with reference to the "disciplining effect," it could be argued that under these circumstances, an LMS, if its monitoring capabilities were publicly known, could in fact increase user effort or usage within e-learning environments. It is within this context, however, that the impact of monitoring becomes more difficult to assess. As it is possible for loyalty to exist between individuals and an organization as an entity, it becomes ill advised for organizations to dismiss the impact of supervision simply by setting up a system where managers, in direct relationships with users, do not receive the system output.

To further complicate matters, Simon has observed that the strength of organizational identity can depend on an organization's perseverance in instilling its beliefs and goals. And that organizational identity is contingent not only on an organization's ability to inculcate, but also on the inculcation prescribed by societal norms and values. It therefore follows that different regional units within a global enterprise could possess varying degrees of organizational identity. It is with this point that I would caution organizations from adopting a centrally managed approach to e-learning across a globally disperse company. As the impact of supervision is in part influenced by organizational identity, implementing a centrally managed system that monitors a globally disperse e-learning environment would fail to address a key issue in the measurement of the impact of monitoring.

Unfortunately it would be impossible to devise an all-encompassing method for assessing the presence of organizational identity within or across a company. As such, analysis of the existence of such organizational identity would have to be conducted on an individual basis to weigh the potential impact of monitoring in an e-learning environment. This, of course, is a monumental task. One, which I would assume, many organizations would find too cumbersome to take on. In light of this, perhaps a simple cost-benefit analysis could provide a better assessment of whether monitoring in an e-learning environment is advantageous.

In the context of monitoring e-learning, the a benefit listed by proponents of LMSs is the ability to assess the return on their e-learning investment (Little, 2001), as well as the ability to capture skill development and knowledge (Brennan

et al., 2001; Aldrich, 2001). I would concede that providing the ability to gauge the usage of e-learning environments is important. LMSs are very costly to implement (Adkins, 2001), and having the ability to see both how and how much a system is being used is an important indicator for measuring the value of the investment.

The ability to capture knowledge and skill development is however a more dubious benefit. Some reports go so far as suggesting that LMSs provide the ability to prevent "tacit knowledge from walking out the door" by creating a map of a users e-learning usage patterns, which can be used by subsequent employees to

capture the knowledge of a predecessor who has left the organization (Brennan, 2001). Galliers and Newell, however, provided an argument negating the ability to transfer knowledge through technology (Galliers & Newell, 2000). They indicated that intended transfers of knowledge become blurred by the recipient's individual beliefs and values. Given this evidence, I would assign a low grade to the benefit of capturing knowledge.

It is further suggested that skills can be effectively managed through LMSs. Identifying skill proficiencies and deficiencies, as well as the subsequent ability, through reports ascertained from the system, to deploy skills strategically, are conveyed as principal benefits. However, citing the ambiguity of skill defini-

tions as well as the tendency to track skills that are not primary to the organization, it has been argued that attempts to manage skills in this manner often fail (Aldrich, 2001).

Although the costs associated with monitoring an e-learning environment are numerous, including the financial costs of both implementing the system and the subsequent management of reports, I will focus solely on the cost of negative usage. Given the research on monitoring, it

is safe to conclude that under certain conditions tighter supervision can have negative effects on work effort. In an age where knowledge and innovation are seen as key business advantages, and LMSs, through the use of virtual communities, are intended to create an environment for sharing knowledge, ensuring that e-learning environments are used to their fullest potential becomes a primary objective. If usage is hindered by the introduction of monitoring, however, this objective is left unfulfilled. I would therefore conclude that at an organizational level where employees are seen as having the potential to exchange beneficial knowledge and moreover, that creativity and innovative thought is hoped to transpire from these exchanges, the cost of monitoring, emphasized by a reduction in usage, outweigh the benefits of LMSs. This conclusion is further supported by Frey's demonstration that negative repercussions from monitoring will be more greatly punctuated when jobs entail elements of judgment and intuition (Frey, 1993), characteristics viewed, in part, as enablers of creativity and innovation (Kay, 1979).

Conversely, for jobs that are simplistic and mundane, positions for which Frey argued monitoring has little positive impact on work effort, and where innovative thought is not sought through the acquisition or exchange of knowledge, the ability to assess the utilization of e-learning environments may overshadow the cost of monitoring.

Although no definitive answer has been presented on the impacts of monitoring e-learning environments, this article demonstrates a clear need to thoroughly consider the various implications of monitoring, especially in a context where knowledge exchange is viewed as an important objective. The tool under which this exchange of knowledge is to take place constitutes the basis of the final analysis in this article.

LESSONS FROM GROUPWARE

Included in LMS is the ability to collaborate with fellow learners online. In an age where knowledge and innovation take a dominant role on the stage of business, it is easy to see the potential benefits of creating an e-learning environment where learners can share existing knowledge to aid in the expansion and enhancement of base learning material. It has been demonstrated that collaboration, with the goal of enhancing knowledge, has proven advantageous in stimulating creativity and innovation (Stebbins & Shani, 1995). However, research on collaborative working through computerized systems trigger warning signals for the development of virtual learning communities.

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Principle in this discussion is the recognition that barriers of acceptance for collaboration through technological systems, such as groupware or virtual communities, are comprised not solely of technical issues, but also of social issues (Dreyfus, 2001). Empirical studies have shown, for instance, that the transparency inherent to groupware applications can lead to system avoidance due to fear of being controlled (Ciborra, 1996). Further social obstacles discovered in the use of groupware include a misperceived cost-benefit allocation on the part of the user (Grudin, 1988). Here it is argued that if people don't see the direct benefit of interacting with the system, or if they feel that their contribution outweighs that of other users, system acceptance may be low.

Although some studies have shown that collaborative learning in an IT environment has proven effective in achieving creative and innovative results (Shani et al., 2000), the intention of my inclusion of this section is to provide precautionary warning to those considering the implementation of an LMS with virtual learning community capabilities. As shown in research on groupware, collaboration through the use of IT has, in some situations, demonstrated reluctance by people to use the system. E-learning communities involve online collaboration and as such, organizations need to consider some of the social ramifications that may arise, especially when the exchange of ideas is a valued objective of the learning tool.

Through the works of Ciborra, we were informed that some of the reluctance to use groupware stems from fear of being controlled. This point is exemplified with the practical example indicating that "Work in Progress" folders have been found empty due to fears that a manager might view its contents. In line with this example, organizations must consider who will have access to the learning communities in which users participate. Although not representing formal monitoring, such as tracking module selections or assessing results, this more informal supervision does constitute monitoring and should be treated with the same considerations identified in the preceding section.

My final point from research on groupware in relation to e-learning communities involves circumstances where users feel that they are contributing more to the system than others, a situation resulting in diminished participation effort. This phenomenon illustrates that monitoring happens on a peer-to-peer level. Although not addressed in this article, the effect of such peer review does have implications on collaborative system usage and as such should be considered in the context of establishing e-learning communities.

CONCLUSION

From research on supervision and motivation theory one can conclude that there is no clear cut answer to what the effects of monitoring e-learning activity will be. Although no obvious answer exists, this research, even in its most superficial framework, point to the need for organizations to seriously considered the impact of monitoring their e-learning environments before blindly buying into the current industry hype. Key areas of consideration can be ascertained from this research, which may provide a guide for e-learning decision makers. It has been suggested that decisions about implementing LMS should be grounded in an analysis of the benefits and impact of monitoring an e-learning environment. Determining whether the exchange of knowledge is considered a critical objective of the system is paramount in the assessment of monitoring. In an e-learning environment where the encouragement of innovative and creative outcomes is sought, the introduction of monitoring could have detrimental effectives on system usage. Conversely, the ability to monitor the usage of an e-learning environment may be beneficial in both providing transparency on the investment and, in situations where the relationship between the principal and the agent is considered abstract, increasing e-learning use. Leaving the reader with some food for thought, this article further suggests that organizations should also reflect on the effects of peer monitoring in their e-learning system considerations. ☉

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