

## CHAPTER 2

### REVIEW OF RELATED LITERATURE

The most driving rationale for this research was the fact that there were no known precedent studies of the same focus. After extensive searching, it was ascertained that there were no currently known sources of precedent studies for research specifically pertaining on-job learning via SMS communication technology. Despite active email correspondence solicitation, in addition to the customary worldwide web searches, I received very little feedback in terms of concrete comparison to other related research.

However, there seemed to be (and still is) an overwhelming interest in the novelty of the idea of the study, given its clear and direct application benefit. Thus, the majority of literature resources referred to in this study have been articles on the Internet, forwarded to by colleagues, lecturers, and email correspondents who have taken an interest in my research project.

#### **Technology Based Learning**

##### **Types of e-Learning**

Broadbent advocates four types of e Learning via computer-based technology (Broadbent, 2000), leader-led, knowledge management, self-study and performance support. Similarly, I propose that there are four types of SMS-based learning (**Error! Reference source not found.**):

Types	Description
Leader-led	Instructor acts as prompter – leading the direction of content, frequency and length of SMS transactions
Knowledge Management	Transactions are well organized in hand phone memory – capacity for storage, retrieval, forwarding and editing
Self-study	Pace and choice to learn is prerogative of learner – freedom to SMS or not to SMS, liberty to control own participation
Performance Support	SMS access as an instantaneous available support for everyday on-job learning – “on-line” and “real-time”

Table 2 - 1: Four Types of SMS based Learning

### **Technology as a Medium of Delivery vs. Cognitive Tool**

Technology used in instruction is not the same as instructional technology (Clark & Salomon, 1986). The former involves “replicable means, forms, or vehicles by which instruction is formatted, stored, and delivered to the learner” (Schwen, 1977). Where else the latter is the “systematic way of designing, carrying out and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication and employing a combination of human and nonhuman resources to bring about more effective instruction” (Tickton, 1970, pg.12). In both cases, there exists a plethora of recent research studies.

New affordances made possible by new technological media are a common topic of study. One relevant example would be the research by Landers “The

advantages and disadvantages of using WAP in developing an m-Learning course” (Landers, 2002) which studied the phenomenon of Mobile Learning in Action. In his research, Landers studied issues of user interface and limitations of the medium’s processing power. He concluded that the effectiveness of the medium is dependent on the level of user-friendliness as well as the capacity of the medium. Similarly, SMS communication, being the predecessor to WAP technology, is also very much dependent on the same variables.

But as concluded by Clark and Salomon, it is not the medium of technology per se that influences learning, but “the curricular reform that that its introduction enabled” (Clark & Salomon, 1986, pg. 466). One research study that looked into such instructional technology issues was that by Donna McAuliffe “Challenging Methodological Traditions” (McAuliffe, 2003). In her study, McAuliffe looked at how e-mail technology could be used to develop “a new method of qualitative data collection designed to aid the reflective process and assist practitioners to engage in an ongoing dialogue about complex ethical dilemmas”. Although it used a different medium, this study is parallel to my own topic, where I used SMS communication as a medium to encourage instructional dialog to solve problems faced during on-job tasks, as well as to provoke self-reflection towards personal development subsequent to the process. Only, in my research, I explored learning in an on-job environment, and not in a controlled academic course.

### **Technology as an Environment for Learning**

Another paradigm, in which technology has been studied, is that in which technology is not seen as a tool, but as an integral part of the environment in which learners interact in.

One study that is closer to home, is the research by my own research supervisor, Professor John A. Phillips, pertaining the phenomena of Technology Based Learning Environment (Phillips, 2001), of which my proposed SMS based Osmosis Learning would fall under type-ET4 (refer Figure 2 - 1 and Figure 2 - 2).

This paradigm assumes technology is already ubiquitous in existence in all elements in the process of teaching and learning, at the input level (instruction, teaching, stimuli), and the output level (production, lesson learned, response), as well as in all the stages in between (awareness, analysis, synthesis). Learning objectives are not rigid and are not necessarily only job-related problem solving, but also involve individual work-habits. Thus, learning becomes more global and covers a wider scope.

This process is a result of natural trial and error, absorption, or peer learning, rather than by systematic instruction. As the process of learning need not follow traditional instructional design models, it would be possible for sequencing and levels of learning to be skipped and/or multiplied. Learning becomes accelerated as organization procedures and systems are automated.

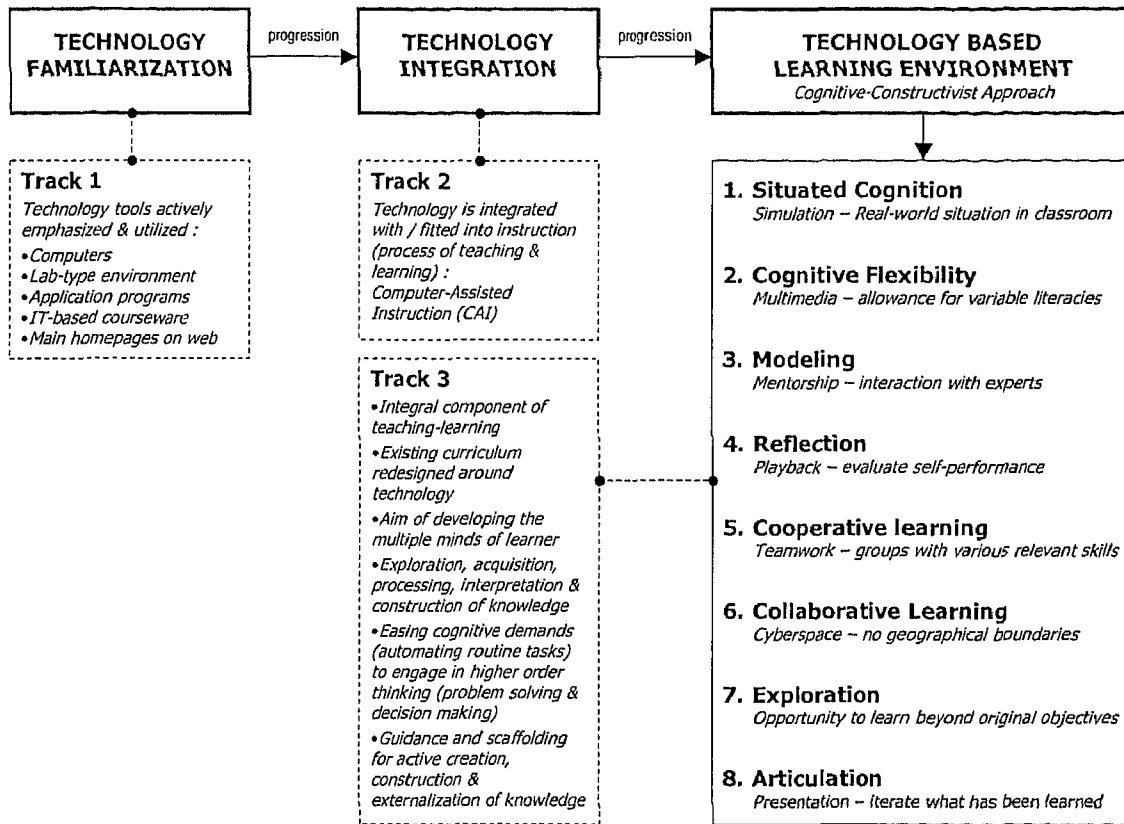


Figure 2 - 1: Technology Paradigms ET1, ET2, ET3, ET4 (based on Phillips, 2001)

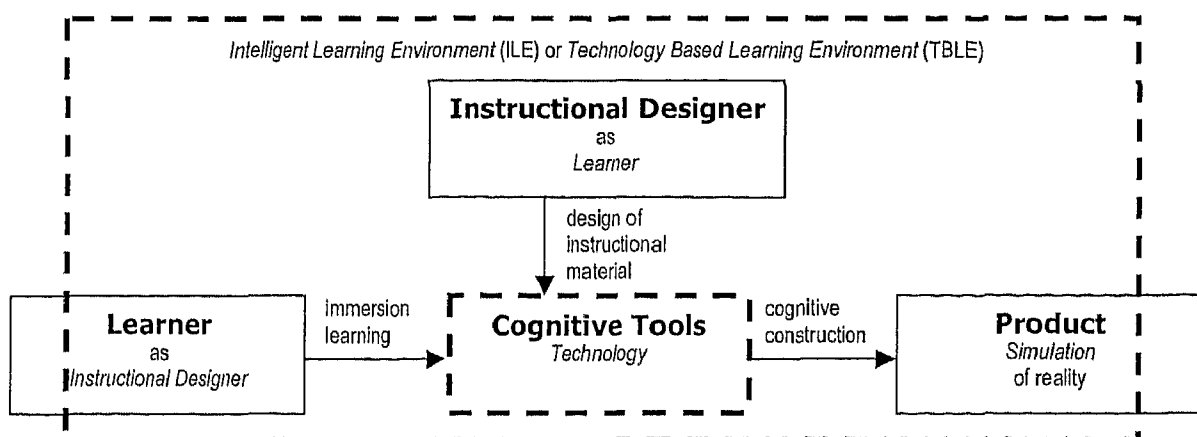


Figure 2 - 2: The Technology-Based Learning Environment - TBLE (based on Phillips, 2001)

## The Process of Learning

### Alternative Modes of Learning

It would not be too far fetched to assume that non-traditional technology environments would produce non-traditional modes of learning. Thus, a review of alternative modes of learning, together with the relevant effecting variables, would be apt prior to embarking in the study of SMS-based Osmosis Learning, both of which are relatively unknown.

Ken Morse conducted a case study on the implications of delivery method relative to cultural differences (Morse, 2003). This classification of “cultural differences”, while somewhat related to ethnic and socio-economic backgrounds, measured more specifically, variables of ability and style of interaction in an asynchronous computer-mediated environment. These subjects, who hail from various different backgrounds, were classified as either “high context” or “low context” learners. While the computer-mediated classroom provided a geographically limitless environment for the learners in his study, Morse discovered that the cultural “context” of the learner played a critical role in the ability of the learner to maximize his or her indulgence in the computer-mediated class.

In low-context communication, the listener knows very little and must be told practically everything. Practically speaking, these communications have been associated with “contract cultures” that operate on the basis of the unambiguous written

word.

On the other end of that continuum is a high context culture in which high levels of programmed (mutually understood) information provide context, which require a longer time to program and to interpret in order to convey meaning. In high-context communication, the listener is already “contextualized” and so does not need to be given much background information.

Likewise, practically speaking these communications have been associated with “relationship cultures” which operate on the basis of personal networks, relationships, and respect.

(Morse, 2003)

Similarly, the ability and extent of learner indulgence in SMS communication would pivot on the learner’s cultural “context”. Learners with “high context” are expected to place more emphasis on content and knowledge based learning, and less or little emphasis on personal transferable skills. This is also known as the “diligence overcomes stupidity” (Ming C.K., n.d.) or hard work to success syndrome. On the other hand, “low context” learners would place less priority on immediate procedural tasks, and instead, subconsciously focus on attitudinally based “deep” learning, the development of personal skills and attitudes with a “lifelong learning” outlook.

Other modes of alternative learning to be studied would include instructional strategies used by covert intelligence agents or strategies used in covert warfare. In these cases, the “instructor” needs to instil and implant specific behavioural outcomes in their “learners” without detection. The involuntary absorption of input by their “learners” is similar in nature to that proposed in my Osmosis Learning paradigm.

Thus, the instructor must first learn how to “plant” and nurture “spies”.

What enables the enlightened rulers and good generals to conquer the enemy at every move and achieve extraordinary success is foreknowledge.

Only the wisest ruler can use spies. Only the most benevolent and upright general can use spies, and only the most alert and observant person can get the truth using spies.

You must have spies seek and learn them. You must seek enemy spies. Bribe them, and instruct and retain them. Therefore, double spies can be obtained and used. From their knowledge, you can obtain local and internal spies. From their knowledge, the dead spies can spread misinformation to the enemy. From their knowledge, our living spies can be used as planned. The ruler must know these five kinds of espionage. This knowledge depends on the double spies. Therefore, you must treat them with the utmost generosity.

Therefore, enlightened rulers and good generals who are able to obtain intelligent agents, as spies are certain for great achievements.

(Tsun Tzu, circa 496 BC)

### **Literacies in Learning**

Learner literacy, or ability to communicate and understand the language and syntax of a medium used in instruction, is a critical factor in determining the outcome of an instructional effort. The learner must first acquire a competent level of literacy before being able to process the input received.

We need to develop new literacies to meet the challenge of new media and technologies, and that literacies of diverse sorts -- are of crucial importance in restructuring education for a high tech and multicultural society and global culture.

(Kellner, D., n.d.)



Kellner advocates that it is necessary to learn new skills, or “literacies”, that are relevant to the new technology environment that we learn within in the present day. Similarly, my study intended to reveal what new required skills are necessary with respect to SMS technology. Issue of literacy determines the level of absorption or compatibility of the learner to the environment in which he is learning in.

During the "instructional" process, learners perceive the messages encoded in the medium and sometime "interact" with the technology. Interaction is normally operationalized in terms of student input to the technology, which triggers some form of answer judging and response from the technology in the form of some previously encoded (canned) message.

(Jonassen, D.H., n.d.)

Jonassen implies that that there is an encrypted “language” of learning which is unique to the technology medium involved. My proposed SMS based learning case study attempted to decode and document the language syntax it exists within. This is especially important as SMS communication involves a multitude of “short-form” terminology, much of which has evolved only in the past recent year or two, and thus, has yet to be researched.

### **Perception of Learning**

In addition to actual learner skills, prior knowledge and style of learning, even learner’s perceptions can effect their learning. Studies of performance in an online course (Picciano, 2001) have shown that student perceptions of the quality

and quantity of their interactions in class effects their learning greatly.

If a student perceives himself as part of the class, his sense of inclusion will motivate him to learn. On the contrary, if a student is unable to feel as being part of the class, he will not be motivated to learn. Similarly, learning via SMS communication can only occur if the receiver acknowledges the interaction as a process of instruction. The learner's perception on the function and use of SMS is fundamental in his acceptance of instructions received via that medium. However, the onus is on the instructor to instil such a perception in the learner.

## **The Organization**

### **Staff Development**

What fundamentally will distinguish learning organizations from traditional authoritarian "controlling organizations" will be the mastery of certain basic disciplines: systems thinking, personal mastery, mental models, shared vision and team learning.

Senge (1990)

As outlined by Senge, there are five disciplines that must be imbibed in the members of a "Learning Organization". And the process of learning these disciplines must be incorporated into the staff development master plan of the organization.

One example of an effective approach to staff development is that of Miami University's Staff Learning Communities Program (SLCP), where on-job ongoing community based learning is implemented to "design and implement staff

Learning communities” (Cox, 2002). Staff were enrolled in a formalized activity of “group learning”, but minus any “formal instruction”. Instead, staff within the groups shared personal experiences and offered guidance to each other during regular meets. “The safety offered by the staff learning community had been important in opening constructive dialog and fostering risk taking” (Cox, 2002, pg.6), resulting in personal holistic growth. While on the surface, daily work-related problems are discussed and solved; the research revealed that through time, “deep learning” occurred.

The proposed SMS based Osmosis Learning study was designed to follow the SLCP model. A number of learners with similar task objectives were solicited to form “support groups” or “paired learning-buddies”, and stimulated to engage in mentorship-style SMS dialog. Although this SMS dialog did involve intensive face-to-face interaction, as in the case of the SLCP precedent, it still provided one-on-one personalized human interaction. And based on the initial pilot data collected during the novelty effect period (refer Chapter 4), SMS dialog produced high levels of reflection, and thus subsequently, “deep learning”.

### **Alternative Management Strategies**

The high-producing managers whose deviations from existing theory and practice are creating improved procedures have not yet integrated their deviant principles into a theory of management. Individually, they are often clearly aware of how a particular practice of theirs differs from generally accepted methods, but the magnitude, importance, and systematic nature of the differences when the total pattern is examined do not appear to be recognized.

Likert, R. (1961)

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Radical or unorthodox management styles have been proven to produce superior work efficiencies even as far back as 1961, as observed by Likert. However, such practices, he pointed out, had not been studied or documented at that point of time. While there have been many studies on such strategies since then, very few are relevant to the introduction of SMS communication in recent years. This study aims to explore this gap in research. The establishment in this case study also practices a unique “lateral management” style (De Bono, 1971), similar to that described by Likert, seemingly unprecedented and within the local context of which it exists.

### **Empowerment and Self- Actualisation**

Technology brings empowerment. New technology allows the learner to be actively involved in Instructional Systems Design.

(Kozma, 2000)

In line with this statement, SMS technology affords the learner a newfound freedom to exercise individualism. As the hand phone has evolved to become an affordable and convenient communication necessity in the work environment, almost everyone owns and uses one. Everyone has the right and power to communicate to another at any time any place he chooses.

Thus, theoretically, everyone can control his own instructional output and learning input. This new environment transformation requires the creation of a new culture that is:

- Embraced & embedded within a multidisciplinary context - not just existent within context
- Designed to empower the learner - not just designed for instruction
- Understood & maximized as a cognitive tool - not just seen as a delivery device

(Kozma, 2000)

## Leadership

Five-month long experiment on groups of children in specifically created work environments. Each group was subjected to different leaders with differing leadership styles. The study explored effects of different variable changes on the various groups in rotation for periods of six-weeks. The results revealed stark differences between group behaviour under autocratic, democratic and laissez-faire leaderships. The study listed four factors underlying differing patterns of group behaviour, such as rebellion against authority, persecution of a scapegoat, apathetic submissiveness to authoritarian domination or attack upon an outsider, as: tension, restriction, rigidity and culture.

When pressured by tension imposed by a leader, group members reciprocate with equivalent, if not higher, levels of tension that often translate into aggression. Restrictive work conditions and rigid regulations, either imposed by the leader, or existing conditions ignored by a leader, inadvertently result in rebellion. But the most influential factor, yet least predictable, is culture, or “style of living”. Habitual characteristics of the people involved play a major role in determining their response to their leader.

Lewin, K., Lippitt, R., White, R.K. (1939).

Although the very interesting “staged experiment” as carried out by Lewin, Lippitt and White did not involve working adults, the findings exemplified typical human organizational behaviour within a defined group for a specific task. This is

relevant to the case study as the variables involved are similar but carried out in a totally different context. The 1939 experiment involved task execution (TE) using physical and verbal communication within a confined venue. This case study, on the other hand, challenges the restraints of physical venue and replaces the reliance on traditional verbal communication with that of SMS technology.

### **Communication**

Another experiment pertaining organizational communication behaviour that was relevant was one carried out by Leavitt (1957) based on the theories posed by Bavelas (1948). The concept of “sum of neighbours” and “sum of distances” as advocated by Bavelas, is where “distance” of communication between people is “measured by the number of communicative links which must be utilized to get, by the shortest rout, from one position to another” (Leavitt, H.J., 1951). A group of subjects were experimented on in a human laboratory environment to test these concepts. While very interesting results were found, the context in which it was observed was rather trivial. Measuring communication variables in a sterile laboratory environment hardly reflects the complexity of actual on-job communication in a work environment. This study aims to look at similar patterns of communication but in an immersed in-context, on-site study.