

## Knowledge Management and HR

### Learning Outcomes

1. What is Knowledge?
2. Where is knowledge in organisations?
3. How do organisations learn?
4. The dominant perspectives of knowledge, KM

### Contents

|  |           |
|--|-----------|
| Learning Outcomes.....   | 1         |
| <b>Introduction .....</b>  | <b>2</b>  |
| <b>KNOWLEDGE IN ORGANISATIONS .....</b>                                      | <b>3</b>  |
| What is Knowledge? .....   | 3         |
| Types and Forms of Knowledge.....  | 5         |
| <i>Tacit and Explicit Knowledge</i> .....                                    | 5         |
| <i>Knowledge In Organisations: Individual and Collective Knowledge</i> ..... | 6         |
| <b>Learning in organisations .....</b>                                       | <b>8</b>  |
| Individual Learning .....  | 8         |
| Organisational Learning.....   | 9         |
| <i>Theory of Meaning Structures</i> .....                                    | 9         |
| <i>SECI Model</i> .....  | 16        |
| <b>KNOWLEDGE MANAGEMENT AND HR .....</b>                                     | <b>19</b> |
| Perspectives of KM.....  | 19        |
| <i>Knowledge Cycle</i> .....   | 20        |
| Adding KM to HRM.....  | 20        |
| Hence... ..  | 21        |
| <i>Strategy</i> .....  | 21        |
| <i>Getting the Best Fit Between HRM and KM</i> .....                         | 22        |
| <b>Other References.....</b>   | <b>24</b> |

### Lecturer:

Dr Richard Boateng, ICITD, Southern University  
Email: [Richard@pearlrichards.org](mailto:Richard@pearlrichards.org)

## INTRODUCTION

*“If your mind is empty, it is always ready for anything; it is open to everything.  
In the beginner’s mind there are many possibilities; in the expert’s mind there are few”.*  
- Suzuki Roshi in Chawla (1995)

In recent years while the traditional three factors of production; land, labour, and capital, have become relatively easier to handle, a fourth, knowledge, though not new, is increasingly becoming prominent and gaining much emphasis (Castells, 1998; Kluge et al., 2001:4). Knowledge is at the heart of today’s global economy and hence an important competitive advantage for any organisation (Gunnlaugsdottir, 2003). Thus Francis Bacon’s assertion, “**knowledge is power**”, tends to be more of a reality done just a statement (Liao, 2003).

However, emphasise that, though knowledge is essential, what is critical to organisations is **‘making sense’ out of it; the ability to change knowledge; the ability to learn** (Dixon, 1994: 1-2; Jacques, 2000: 208).

- In times past, **knowing was far more important than learning**, “now, the quality of inquiry and questions are valued as much as arriving at a sound theory” (Chawla, 1995).
- Unfortunately, the term ‘learning’ for most of us has been based on the premises that, there is a right answer, which is known by another; usually an expert, that we want to thoroughly grasp (Dixon, 1994: 1-2).
- Nevertheless, while this is not false, **it is limited especially in the context of finding answers to problems in organisations which have never been experienced or in which previous answers show no promise.**
- Thus, **knowledge; the seeming right answer, is ephemeral; constantly needing to be revised and updated** (ibid). The focus, consequently, moves from the product onto the process, hence, *we ask that how can we learn effectively?*

To this question, Suzuki Roshi gives as answer in the quote above. We can only learn,

- *when we open up, share what we know and alienate ourselves from that to consider what others know (Dixon, 1994).*

In relation, Huber (1989:3) adds that, organisations learn when any of its components have acquired information and have this information available for use, either by other components or by itself, on behalf of the organisations. Thus in both scenarios whether individually or collectively as an organisation, what is stressed is the accessibility of what is known to others for usage. As such, several perspectives can exist concerning a given problem based on the information individuals and/or subunits may have, emphasising that the possibilities of effective learning lies in bringing all this information to bear and to contribute to the definition of solutions. It is through this accessibility and action that the power of knowledge is harnessed to solve problems, preserve valuable heritage, and initiate new situations for the present and future (Liao, 2003).

Consequently, it thus becomes critical that the day to day work environment within an organisation should favour learning processes that support the accessibility and utilisation of knowledge in order to maximise returns (Kessels, 2001).

## KNOWLEDGE IN ORGANISATIONS

### What is Knowledge?

In seeking to understand the concept of knowledge and learning the first question that needs to be answered is, *what is knowledge?*

Several definitions and taxonomies of knowledge have been put forward through research studies and books (Polanyi, 1962, 1966; Zander and Kogut 1995; Dixon, 2000; Gunnlaugsdottir, 2003). Evident from these, Newell et al. (2002), rightly notes that, knowledge is an intrinsically ambiguous and equivocal term. As such, a useful starting point in understanding this term is to draw the distinction between information and knowledge.

Information as defined by Dixon (2000:13) is data that is *in formation*; **that has been sorted, analysed, and displayed and communicated through spoken language, graphic displays, or numeric tables**. Knowledge in contrast is the “**meaningful links people make in their minds between information and its application in action in a specific setting**” (ibid). In relation, Gunnlaugsdottir (2003) explains that, facts without context are called “data”, however, when these data are organised, analysed and interpreted to acquire a meaning, information is obtained. On the other hand, information only becomes **knowledge when it is put into a logical and understandable context which we can verify and recall from our experience** (ibid).

Martz and Shepherd (2003) also explain that, as data obtains a “**specific meaning**” or takes on a perspective (Manson, 1978), it becomes information, however, knowledge occurs as a product of inquiry concerning information (Ackoff and Emery, 1972). In effect, knowledge can be then be considered as information with defined actions in a specific context; it is goal oriented, not just a collection of information (ibid).

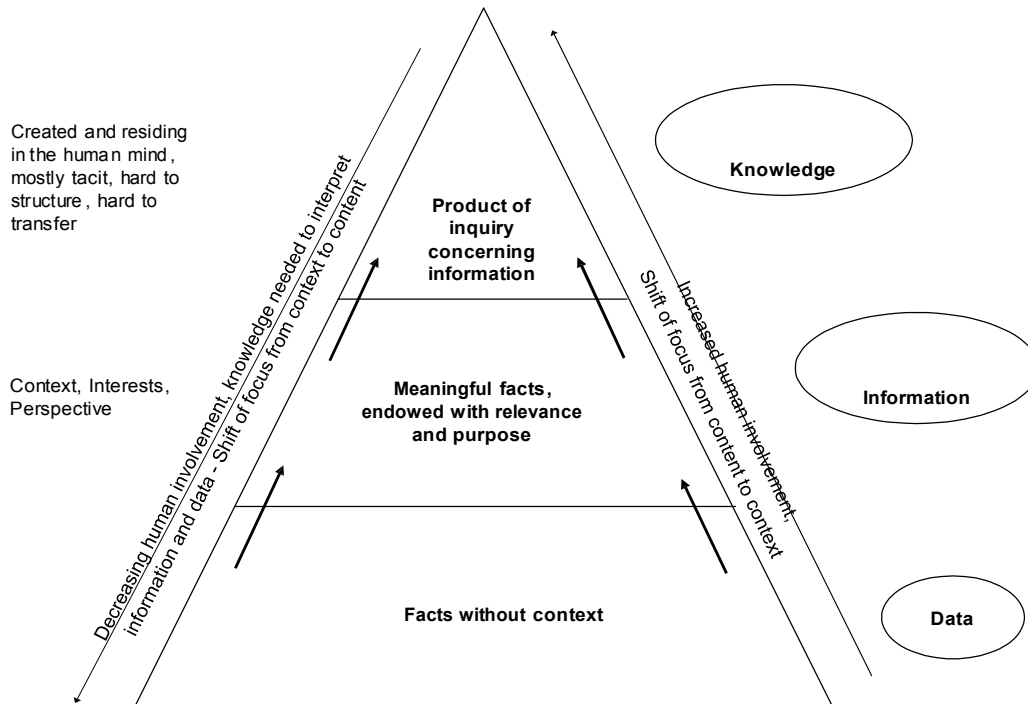
For example, a truck manufacturing team in St. Louis has *knowledge* about how to attach the front bumper to a track in fifteen seconds. When it writes that *knowledge* up and sends it to a sister factory in Dearborn, it becomes *information* because the team in Dearborn may or may not make the connections to its specific setting (Dixon, 2000:13). **As such, in practice the distinction gets blurred since the classification then depends on the individual.**

Emphasising on this, Nonaka (1994) as in Newell et al. (2002: 3) states that, “it is the semantic aspects of information that create knowledge”. Thus the way information is conveyed and the meaning inferred from information by an individual creates knowledge. Knowledge then tends to be information within people’s minds (Davenport and Marchand, 2000: 165-169). Consequently, the inference made from information by an individual is related to their cognitive capacity and interpretive schema, hence the same information may have different inferences from different people, which could lead to the creation of new and different knowledge (Newell et al., 2002: 3).

Thus information can additionally be considered as the **vehicle used to express and communicate knowledge (Davenport and Marchand, 2000: 165-169), and knowledge can viewed as the processing of information and as a skill based on previous understanding, procedures and experience (Bocij et al., 2003: 28)**. Furthermore, if previous understanding, procedures and experience also constitute the formation of knowledge, then it also presupposes that knowledge is also needed to interpret information and data to define new knowledge.

Adopting from Heeks (2003:2) and Schueber (2002), the 'Information Pyramid', Figure 1, depicts the overall relationship between data, information, and knowledge, in terms of: (1) position on a continuum, (2) volume (large to small), (3) value (lower to higher) and (4) regarding human involvement.

**Figure 1 The Information Pyramid**



Modified From (Heeks, 2003:2; Schueber, 2002)

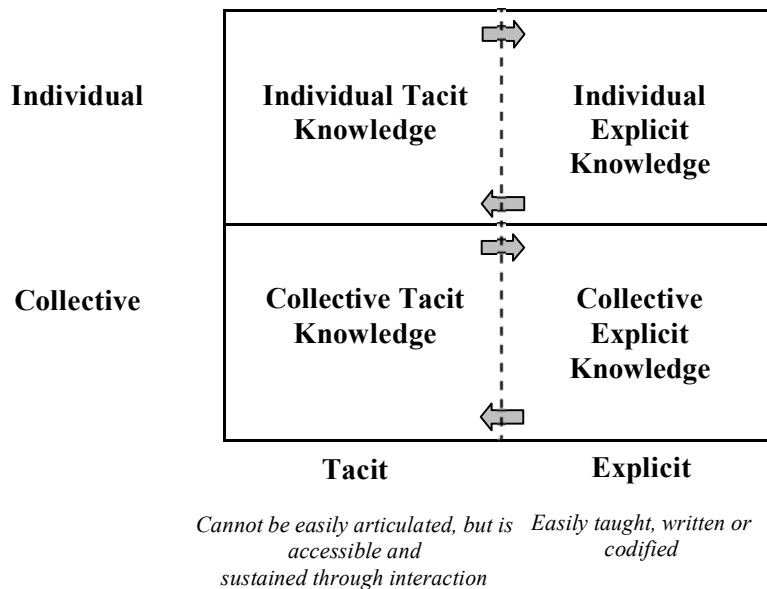
Along the transition from data via information to knowledge value is added through the human involvement. The increased human involvement makes information and knowledge not only more of context and person specific but also harder to manage (Davenport, 1997) and to transfer. This becomes even more evident when viewed from an organisational perspective. Further, along the transition from knowledge via information to data, knowledge is relatively needed to interpret information and data to define new knowledge.

## Types and Forms of Knowledge

2 Types: Tacit and Explicit (Polyani, 1966).

4 Forms: Individual (Tacit and Explicit) and Collective/Group (Cook & Brown, 1999)

Figure 2 The Four Forms of Organisational Knowledge



Adapted From Spencer (1996) as in Wang And Ahmed (2003)

### ***Tacit and Explicit Knowledge***

From this structural perspective of knowledge; knowledge perceived as a discrete, objective, largely cognitive entity (Newell et al., 2002: 3), two types of knowledge can be described – explicit and tacit knowledge. Identifiable from the example on the truck manufacturing teams, tacit knowledge are skills, judgement and intuition that people have but cannot easily describe, and explicit knowledge are skills and facts that can be written down and taught to others (Hope and Hope, 1997).

As Newell et al. (2002: 3) explain, **tacit knowledge often referred to as “know-how”, resides in our heads, practical skills and actions.** It is known but extremely difficult or in some cases impossible to articulate or communicate adequately. For example, though many people know how to ride a bike, explaining or writing down exactly for others to follow would be problematic. It is the individual’s experience of learning to ride a bike that leads to that individual processing the knowledge of how to ride a bike (ibid). Leonard-Barton and Sensiper (1998) argue that, tacit knowledge is usually acquired unconsciously or semi-consciously, thus the sum of implicit, subjective and unconscious understanding and skills constitutes the bike riding knowledge gained by the individual (De Freitas, 2002). Consequently, it tends to be as Polanyi (1962) suggests, for example, we often know more than we can tell or articulate.

**Explicit knowledge, on the other hand, can be codified and communicated to others and may exist in form such as rules, procedures and theories.** As De Freitas (2002) comments, “authors

say that explicit knowledge tends to be an attempt to articulate tacit knowledge, in writing, speech or in any tangible means". For example, instructions of bike riding can be captured in a training book. However, one may then wonder whether this book is explicit knowledge or information, thus "if explicit knowledge is that which is codified, *where does the boundary between information and explicit knowledge lie*" (ibid)?

In this view, Nonaka and Takeuchi (1995) argue that once knowledge is articulated it becomes information; training book, which can be re-assimilated into new knowledge as the book is read by the individual. In relation, De Freitas (2002) adds that, it is perhaps more correct to state that knowledge is not explicit but that this 'explicit knowledge' actually becomes information when it is codified and subsequently becomes knowledge when it is re-assimilated into the human mind. It tends to be like Polanyi (1966:7) further suggests, "**all knowledge is either tacit or rooted in tacit knowledge**".

Moreover, drawing meaningful links to the information in training book or video would be *based on prior existing knowledge which the novice possesses*. This presupposes that the amount of prior knowledge *applicable* will then determine the degree of tacit knowledge created (De Freitas, 2002), as such, researchers (Boisot, 1995; Nahapiet and Ghoshal, 1998) suggest that, tacitness can therefore be considered as a variable where the degree of tacitness is a function of the extent to which knowledge can be communicated. By combining explicit knowledge or information with the tacit knowledge or "know-how" the novice possesses; with regard to balance and hand-eye co-ordination, the novice develops knowledge (creates new tacit and explicit knowledge) of how to ride a bike. Hence, Edmondson et al. (2003) state that, tacit and explicit knowledge exist along a spectrum or continuum of tacitness, not as mutually exclusive categories; at one extreme, knowledge is predominantly codified or explicit; at the other extreme, knowledge is predominantly tacit (Polanyi, 1966).

### ***Knowledge In Organisations: Individual and Collective Knowledge***

Within an organisation, knowledge can be classified along the dimensions of individual and collective in respect to the concept of organisations being made up webs of participation or small groups, teams or networks of which the individual is the cornerstone (Chua, 2002; Hope and Hope, 1997:80; De Freitas, 2002).

- Chua (2002) explains **individual knowledge as the knowledge harboured by an individual in an organisation**. For example, in the course of work, an individual may undertake a new organisational task or even common task but in a new way which may yield the same or better thus if this knowledge is not shared with other employees, the organisation can neither multiply nor leverage on the value of this expertise (Davenport and Prusak, 1998). The knowledge is then lost permanently when the individual leaves the organisation. However, if the individual knowledge is shared with other employees, it becomes collective knowledge.
- **Collective knowledge is therefore the knowledge held commonly by a group of members of an organisation** (Chua, 2002) and includes organising principles, routines, practices, and relative organisational consensus on past experiences, goals and missions (Zander and Kogut, 1995) results (ibid). As a result, the knowledge gained by the individual becomes individual knowledge;
- **Communities of practice:** "Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger 2002). As individuals, we are all

members of multiple communities, in our workplace and social life (Walsham, 2001). Hence, within organisations, there exist subcultures, **communities of practice**, consisting of small subgroups of people who have mutual respect, share some common values and generally get important work done (Hope and Hope, 1997). At Citibank for example, employees involved in commercial lending activities in the Southeast Asian region organise themselves into a group to pool expertise and solve problems together (Davenport and Prusak, 2000:39). Thus **communities of practice** and teams bring together a right mix of intelligent agents who have the appropriate set of knowledge, skills, information and abilities to suggest solutions in difficult and unpredictable problems (Alberto, 2001).

Consequently, the essence of collective knowledge is synergy; two plus two can equal five or even six. If two people exchange knowledge with each other both gain information and *relatively* experience linear growth (Davenport and Probst, 2001). But if both share their knowledge with others and feeds back the new information gained, the benefits *relatively* become exponential (Hope and Hope, 1997). As Spender (1996) argues that collective knowledge, is thus more secure and has more strategic significance than individual knowledge and by comparison, it is less volatile and less easily affected by staff turnover (Chua, 2002).

On the other hand, one may question whether there is any real difference between **collective knowledge and the aggregation of individual knowledge** (Gowler and Legge, 1982). Different schools of thought tend to exist on this view. In Simon (1991) perspective that the organisation per se does not hold any knowledge; only its members do. Hence, the collective knowledge is actually the aggregate of the individual knowledge in an organisation (ibid).

In contrast, Nelson and Winter (1982) asserts that collective knowledge is an attribute of the organisation just like its modus operandi and culture; collective knowledge is therefore not reducible to what any single individual knows, or even to any simple, aggregation of the various competencies and capabilities of all the individuals (Chua, 2002). In support, Brown and Duguid (1991) emphasise, that shared knowledge is located in complex, collaborative social practices. In my perspective, I agree with the latter, because **collaborative social practices within an organisation tend to facilitate interaction of individual knowledge through which it is tested, enriched and redefined to create more collective knowledge.**

Thus collective knowledge, as Chua (2002) concludes, is socially and contextually embedded in an organisation, *held in the organisational memory* (storage of collective knowledge) and not a simple aggregation of knowledge held by a set of individuals. However, in attempting to dissect organisational memory, we also realise that ultimately the major part of organisational memory is preserved through its members, thus each individual forms part of the storage of collective knowledge (largely tacit), though some possess a larger portion (De Freitas, 2002; Walsh and Ungson, 1991). Organisational memory also consists of explicit collective knowledge codified in standards, procedures, documents, et cetera, which is constructed and reconstructed by organisational members through organisational interfaces of interaction. Thus in all cases, the value of the human mind; contributing individual knowledge, and partly constructing and storing collective knowledge, is unquestionable (ibid).

Drawing from the above, Spender (1996) suggests a relationship which can be established between the individual-collective dimension of knowledge and its explicit-tacit dimension to create a matrix comprising four types of organisational knowledge as shown in Figure 2.

## LEARNING IN ORGANISATIONS

Organisations are essentially **a collection of individuals who if left unattended will pursue largely individual goals** (Chourides et al. 2003). Thus

- within an organisation there should exist mechanisms which create and connect relationships between individuals to work collectively for common organisation goals.
- Critical to these mechanisms are those which result in sharing information and knowledge for the greater good; thus creating collective knowledge.

As with collective knowledge, collective learning is not simply the sum of all that its organisational members know (Dixon, 1994:36). Each individual of the organisation has developed and stored meaning structures and is capable of creating new meaning or reconstructing existing meaning structures through the interactions with other individuals in the organisation; each individual has the capability to learn (ibid). **The focus of collective learning, in this context, organisational learning (OL), is the collective use of this capability of learning.** However, Wang and Ahmed (2003) point out that, individual learning is not necessarily beneficial to the organisation, because employees may learn something negative to the organisation, or may learn to improve themselves, rather than benefit the organisations (Field, 1997). The collective use of this capability has to be focused on organisational objectives or its stakeholders' expectations. It tends to be as Argyris and Schon (1978:20) explains, "...**there is no OL without individual learning, and that individual learning is a necessary but insufficient condition for OL**". Individual learning is dependent on collective learning and the converse is also true.

In a further perspective, Matlay (2000) notes that if a distinction between the OL and the individual learning is not made explicit, a model of OL will either obscure the actual learning process by ignoring the role of the individual, anthropomorphising organisations or become a simplistic extension of individual learning by glossing over organisational complexities (Kim, 1993: 42-43).

### Individual Learning

Ackoff and Emery (1972) explain that, "**the basis of learning is inquiry; questions are posed with the express goal of obtaining information and accruing it until inquiry is satisfied**". This presupposes that learning is then the process of acquiring knowledge (Cook and Yanow, 1993). Further, it can be inferred that for learning to occur or when learning occurs; there is a *learning product* or what has been learnt, being knowledge; a *learning process* which consists of acquiring, processing and storing information; and a learner to whom the learning process is attributed (Argyris and Schon, 1996:3).

According to Dixon (1994:12), we can identify three ways individuals come to know something:

- firstly, *through the verbal transmission of information* - ideas voiced by others, books, reports, et cetera,
- secondly, *direct experience*; the receipt of sensory data such as colour, sound and pain, and
- lastly, by *reorganising what we already know into a new configuration* thereby creating new knowledge. For example, as a novice listens to an expert bike rider, the novice makes inferences based on the intensity with which the expert speaks as well as the accompanying body gestures. Thus the process of learning is not associated to each of these in separate time and space, in fact, most learning does involve the three simultaneously (ibid).



Further, Herriot and Pemberton (1995) explain that, individuals observe their behaviour and its outcomes and compare them with a standard, knowledge is thus created from human observation and analysis of cause and effect (De Freitas, 2002). Thus learning defines “the process by which knowledge is created through the transformation of experience” (Kolb, 1984).

## Organisational Learning

Theories of learning

- Theory of Meaning Structures (Dixon, 1994)
- SECI Model (Nonaka & Takeuchi (1995)

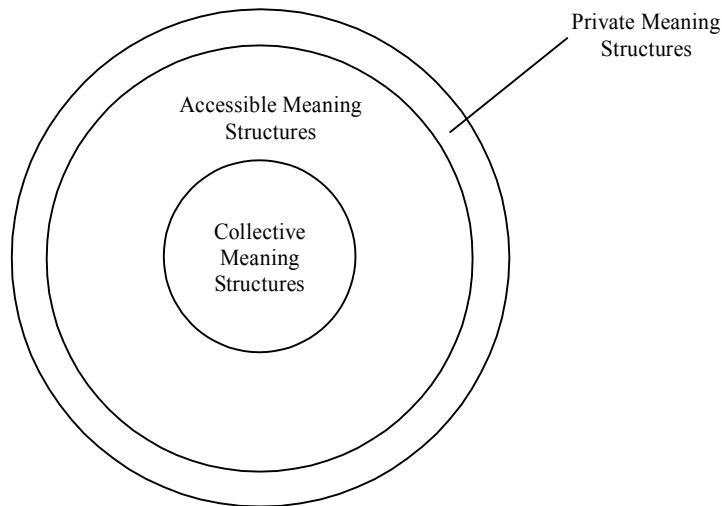
### Theory of Meaning Structures

*explained by Boateng (2004)*

Dixon (1994:14) then argues that through human observation and analysis, an individual creates “**meaning structures**” from the data encountered or obtained from interacting with the world. Meaning structures refers to the meaningful links or interpretations we draw from our sensory impressions, which is influenced by numerous factors, including the context in which it is seen and the meaning structures we have created from the past and the genetic factors (ibid).

As realised, collective knowledge occurs when organisational members share what they know with each other, however, not every organisational member’s entire cognitive map is available to others in the organisation (Dixon, 1994: 36). There are three types of meaning structures:

**Figure 3 Three Types of Meaning Structures in Organisations**



Adapted From McClellan (1983) as in Dixon (1994:37)

- Those parts which individuals choose to withhold from other members is what Dixon (1994:36) refers to as *private meaning structures*;
- and those that they are willing to make available to others in the organisation are referred to as *accessible meaning structures*.
- Further, there also exist those which organisational members hold jointly with other members of the organisation referred to as *collective meaning structures*.

Considering private meaning structures, several reasons do exist for individuals to retain as private what they know. These might include a wish to respect information that has been given in confidence, assumption that others are uninterested in their perspective on an issue, and the recognition that certain information could increase or threaten their social status (ibid). For example, Chepaitis (1994) makes a point that, in Russia information is often hoarded for personal gain rather than shared freely or invested. These reasons tend to originate from the meaning an individual makes of the world around him or may be imposed by the society around him; the organisational environment. They therefore do influence what, which and the extent of meaning an individual may retain.

On other hand, the fact that an individual is willing to make meaning structures available does not insure that every organisational member will choose or be able to, access them; time, space, political, intellectual and cultural factors limit access to others meaning structures (Dixon, 1994:37). Under certain circumstances individuals may be willing to make their meaning accessible but not under others, and further on, may be selective to who has access to it and when; for example the same person who may withhold some meaning from his superiors may be willing to share it with his fellow colleagues. Thus the same meaning may be sometimes private and sometimes accessible, which makes the boundary between accessible and private meaning structures gradual and flexible (ibid).

However, accessible meaning structures reside in human beings not as fixed structures but as constantly changing relationships as organisational members interact with each other and with the organisational environment. They offer the means for organisations to learn as organisational members make what they know accessible to others, enabling the collective construction of meaning from information. Learning, whether, organisational or individual is thus about the construction of meaning (ibid).

Collective meaning structures do envelope the set of norms, strategies, and assumptions which specify organisational processes and tasks, how they are divided and performed. They may be codified in policies and procedures, but to be collective they must also reside in the minds of organisational members as part of organisational memory and fostered by collaborative social practices (ibid). However, Dixon (1994: 39) explains that, **most collective meaning structures are tacit, allowing the organisations to act automatically, swiftly and in concert. As such, there are no need lengthy discussions on why certain things are done certain ways; allowing spending time more productively on critical issues.**

On the other hand, **collective meaning structures can also have negative impact on the organisation.** Considering today's rapid changing world, meaning structures could become obsolete or lose their value with time. However, a collective meaning may be viewed as the *truth* by those who hold it; unquestionable, reaffirmed and validated over time (Dixon, 1994:39). This makes the introduction of new ideas that conflict with the existing meaning structures difficult to implement. They then become collectively tacit and hardly available for dialogue.

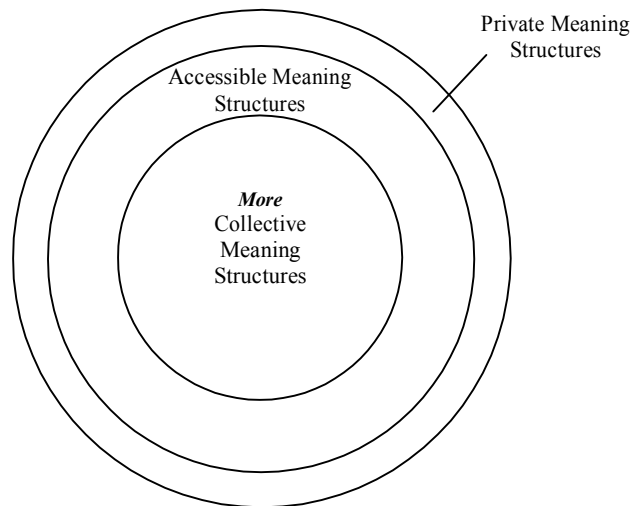
They can only be available to change in novel situations; mergers, or when discrepancies occur to produce adequate dissonance to challenge existing meaning structures (ibid). Discrepancies might include organisational decline or project failures, as would be seen in our case study. Even in such situations, organisational members have to create conscious awareness for change in the tacit collective meaning, making it accessible to be questioned (ibid).

In view of this, our focus on OL should be able to address the importance and limitations of the private and collective meaning structures and promote the growth of accessible meaning structures.

From the understanding of the three meaning structures in organisations, what we seek to achieve in OL is *firstly*, making the private meaning of organisational members more accessible so that they can influence other members, and making collective meaning structures more accessible so that they can be tested and altered.

As Dixon (1994:42) puts it, organisations in which accessible meaning structures are prominent have the greatest capacity for learning. For tradition-bound organisations, little learning occurs. The organisation may function successfully, particularly if it is in a stable environment, but will have little capacity for transformation, Figure 4.

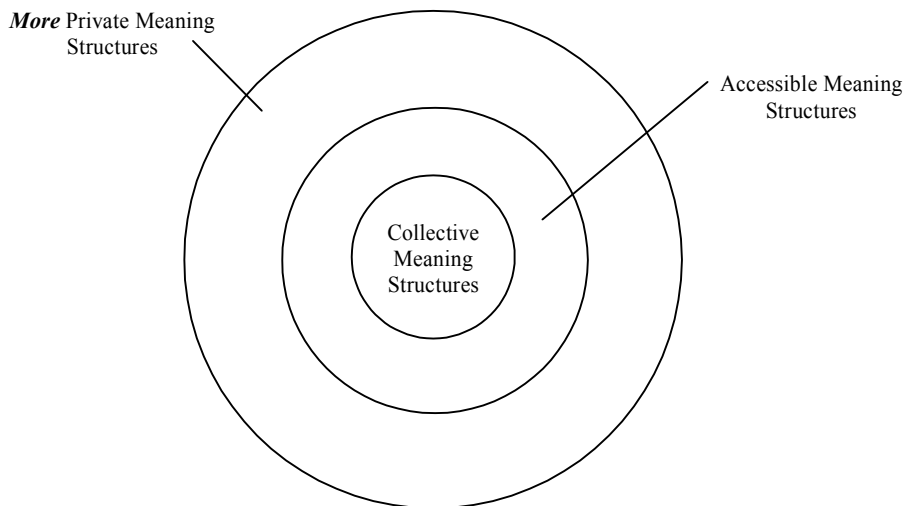
**Figure 4 Meaning Structures in Tradition-bound Organisations**



Adapted From McClellan, 1983 as in Dixon (1994:42-43)

Likewise for organisations in which more meaning is held privately, little learning occurs. Though individual learning may occur in such organisations, learning cannot transform organisational functions since it is not available to others (ibid), illustrated in Figure 5.

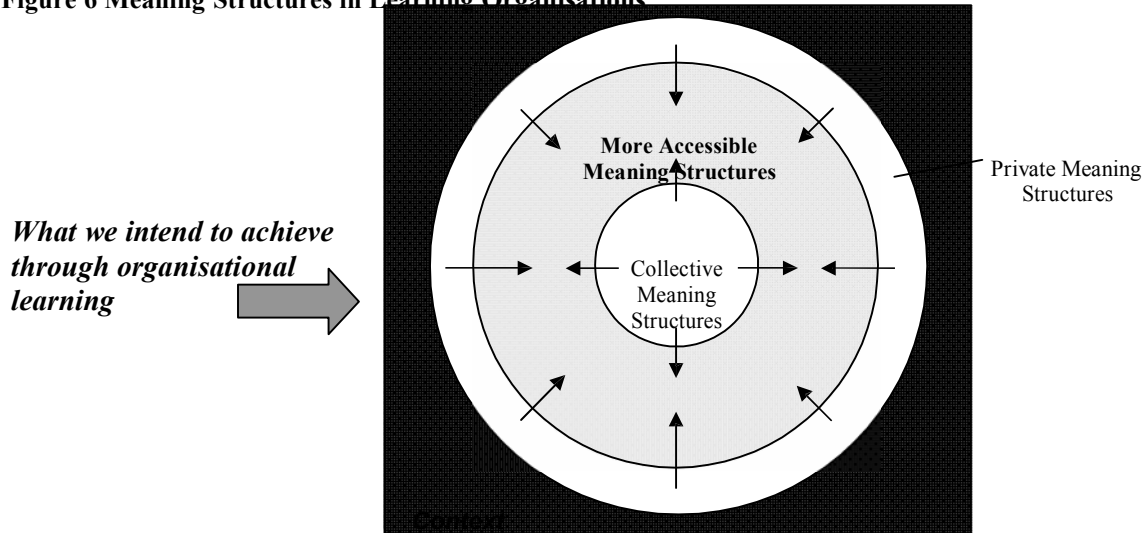
**Figure 5 Meaning Structures in Organisations of Independent Workers**



Adapted From McClellan, 1983 as in Dixon (1994:42-43)

However, our objective is to make both individual and collective meaning structures accessible to others so that they can be exchanged and examined to construct and reconstruct new knowledge, Figure 6.

Figure 6 Meaning Structures in Learning Organisations



Modified From McClellan, 1983 as in Dixon (1994:42-43)

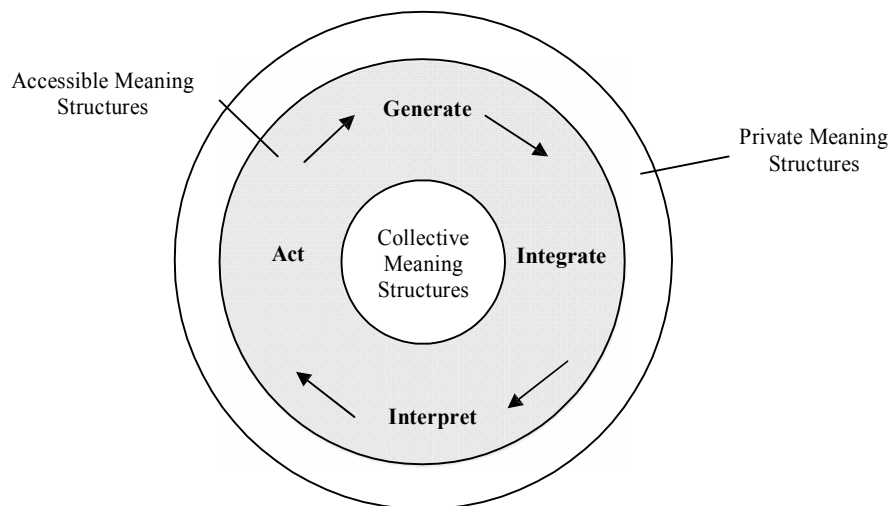
In this view, organisations have to make it a purpose or intentionally create processes to facilitate learning. The fact is that all organisations learn to a greater or extent; they adapt to their environmental constraints, respond to competition, prevent repeat of their mistakes and generate innovative, new ideas (Dixon, 1994: 5). However, it is easy for the learning to be lost when it is accidental than when it is intentional. Since it is our aim to make meaning more accessible; learning collective, then it is critical to make sure that learning processes are intentionally or consciously undertaken so that they can exist in the much more in the explicit form. In this way, organisational members can apply reason to organisational tasks much more meaningfully and be able to analyse cause and effect to define new outcomes.

Organisational learning can be defined as *the intentional use of learning processes at the individual, group/team and organisational level to continuously transform the organisation in a direction increasingly congruent to organisational objectives and stakeholders' expectations* (Dixon, 1994:7). The use of individual, group/team and organisational level, is to emphasise that the OL process should be recognised and become part of the individual as an employee of the organisation; a group/team referring a department or group of employees carrying out a specific project, and at organisation level, as organisational members collectively committed to the organisational good.

## The Learning Cycle

However, in view of our definition, we seek a dynamic process which can capture and create collective knowledge at all levels of the organisation. In relation, Dixon (1994:44) describes an organisational learning cycle (OLC) which involves four steps starting with (1) generate; the widespread generation of information, (2) integrate; integrates the new information into the organisational context, (3) interpret; collectively interpreting the information and (4) act; authorising organisational members to take responsible action based on the interpreted meaning, Figure 7. The fourth step generates more information and feeds into the first to generate new information. The cycle goes beyond the accumulation of information and knowledge to ensure shared, collective meaning is acted upon, applied and used.

**Figure 7 The Organisational Learning Cycle**

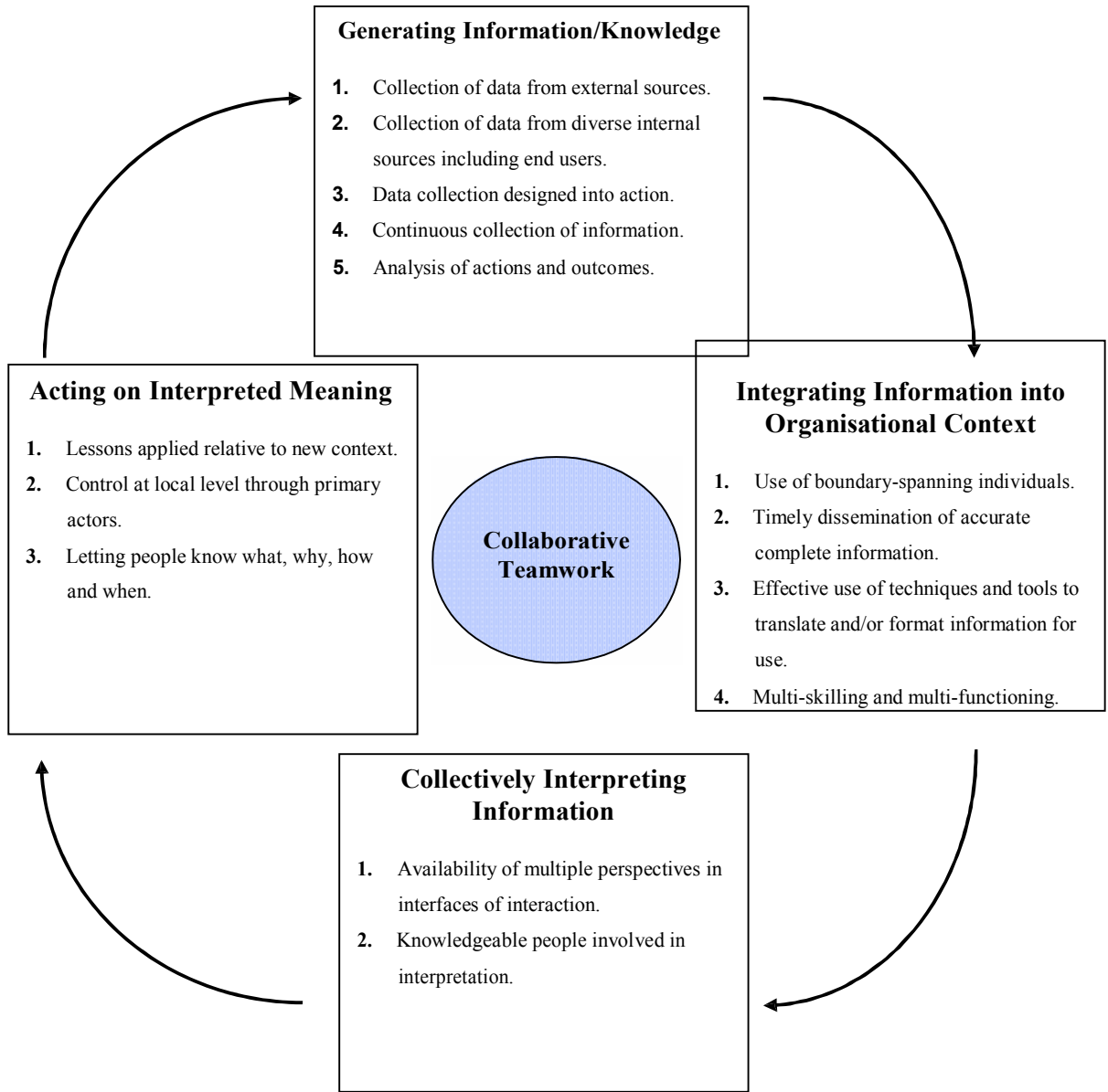


Adapted From Dixon (1994:45)

The first step focuses on the processes through which an organisation acquires its information, including those responsible, and the diverse sources from which it is gained. Processes of acquiring information have to be built into organisational events and actions so that learning can occur as whiles they are undertaken. As Lindblom (1959) and Steinbruner (1974) emphasise, organisational actions are history-dependent, as such within such a framework, organisations can be viewed as learning by encoding inferences from their history and experience, and from that of others, into routines that guide behaviour (Levitt and March, 1988; Garvin, 1993).

- Revans (1983) in Dixon (1994:73) rightly notes: “Any system that is to learn ... must regularly receive and interpret inputs about its own outputs”; thus the inquiry process becomes based on not only *what can we do*, but *what can we learn from what we do?*
- However, as Levitt and March (1988) explains, **what has happened is not always obvious and the causality of events is difficult to untangle**, and moreover, as it has been frequently observed, individual human beings are not perfect statisticians (Thompson, 1967), they make systematic errors in recording the events of history and in making inferences from them and overestimate the probability of events that actually occur.
- Thus, if learning is to be achieved from this perspective, it is also critical that information is collected by the primary actors; those who actually take part, and continuously to maintain its accuracy.

Figure 8 Steps in the Organisational Learning Cycle



Modified from Dixon (1994:70)

The **second step** is focused on drawing links from the organisation context to develop a wider perspective of information received and depends on the extent of information dissemination. Through message routing, summarising, delay and modification (Daft and Huber, 1987) gaps tend to exist between the meanings of those who define the ends and those who define and carry out the means to the ends. It is thus critical for information to be timely, accurately and completely available *relatively* to all levels of the organisation. With more information, organisational members would develop a wider perspective of their tasks; understand the interrelationships between different organisational units and draw meaningful links to their tasks.

The **third step** defines processes that are in place to facilitate the interpretation of information. Organisation learning can only occur through collective interpretation, as such, it is essential that knowledge and expertise is distributed among individuals engaged in collective interpretation rather than residing in only one or two individuals, otherwise collective interpretation would not be useful (Dixon, 1994:77). Individuals should thus be knowledgeable on information to be interpreted. Collective interpretation involves comparing and testing assumptions, actions and their implications in the context of application. This should also be coupled with egalitarian values; freedom to speak without coercion, respect of opinions and equality, and most importantly processes which facilitate dialogue and interaction (ibid).

Finally, **without authorisation to act on collective meaning**, value can be lost or learning may be stalled and wasted. Action gives opportunities to test and experiment new meaning or the collective knowledge gained to generate more knowledge to be shared. Dixon (1994:92) argues that, preventing organisational members to act on what they understand and know leads to anger or despair, or in some situations subversion. On the other hand, one may argue that organisational members do not always do what has to be done, which is true; however, giving them the authority and making them responsible for their actions tends to reduce the risk involved (ibid). Taking responsible actions helps to reaffirm organisational members' commitment to the objectives of the organisation; they realise the importance of their individual knowledge, meaning, and skills to that of the collective and thus seek to make it accessible.

Consequently, the cycle enables the organisation to create, acquire and transfer knowledge, and most essentially modify its behaviour to reflect new knowledge and meaning (Garvin, 1993). However, collective learning is lost when all these steps are disconnected; when different parts of the organisation conduct each step. Additionally, it is also not sufficient to concentrate on only some steps of the cycle, because any one without the others is ineffective; without accurate information, the learning would be ineffective.

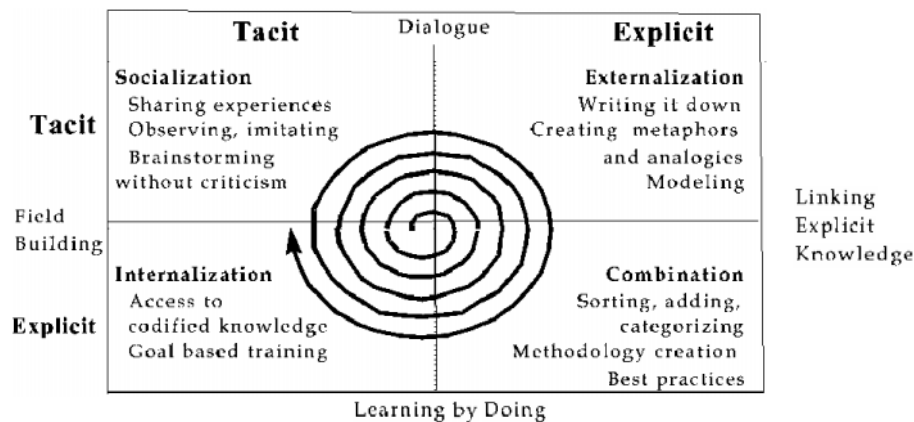
## SECI Model

### *SECI Model as explained by Malik (2008)*

Nonaka and Takeuchi's (1995) assumption is that an organisation is not the sum of individual learning; it can learn and create knowledge through dynamic interactions between employees. They argued that "...human knowledge is created and expanded through social interaction between tacit and explicit knowledge" (ibid: 61), this interaction is 'creation of knowledge'.

The authors emphasised that knowledge conversion is a continuous process through which one transcends the boundary of the 'old self' into a 'new self' by acquiring a new context, a new vision, and new knowledge (Nonaka et al., 2000). Such interactivity allows employees to a larger pool of meaning (Bohm et al., 2004) which cannot be accessed by them as individuals. These knowledge creating processes (KCP) can be identified in four conversion modes; *socialisation* – tacit to tacit, *externalisation* – tacit to explicit, *combination* – explicit to explicit and *internalisation* – explicit to tacit, otherwise also known as the SECI model (Figure 9) (Nonaka and Takeuchi, 1995).

Figure 9 The SECI Model



Source: Nonaka & Takeuchi (1995)

***Socialisation*** – is a process of sharing experiences or through face-to-face communication and creating tacit knowledge such as shared mental models and technical skills. An individual can directly acquire tacit knowledge from others without using language (Nonaka et al., 2001a). In an organisation, socialisation enables employees to focus on extending their ideas and concepts rather than be defensive, or criticise other employees' ideas. Socialisation occurs between individuals and its key processes include (Nonaka and Takeuchi, 1995):

- i. Capturing individual knowledge
- ii. Sharing individual knowledge
- iii. Interaction amongst Shared experiences (similar context)
- iv. Feedback without criticism

***Externalisation*** – is a process of articulating tacit knowledge into explicit through the use of abstractions, metaphors, analogies, or models. The externalisation of tacit knowledge is the quintessential knowledge-creation activity and is most often seen during the concept-creation phase of new product development. Externalisation is typically seen in the process of concept creation and is triggered by dialogue and collective reflection (ibid: 64). **Externalisation process enables diffusion of knowledge from the employee to the group of employees.** Organisations, especially the ones in technical engineering industries, all processes and skills



are kept in manuals and field books. These manuals are codified knowledge, created from experiences, acquired knowledge and skills of employees. Summarising the key underlying processes under externalisation would be (ibid):

- i. Communication (dialogue)
- ii. Capturing Collective knowledge
- iii. Explicit knowledge creation
- iv. Diffusion of knowledge at the collective level
- v. Instantaneous feedbacks and exchange

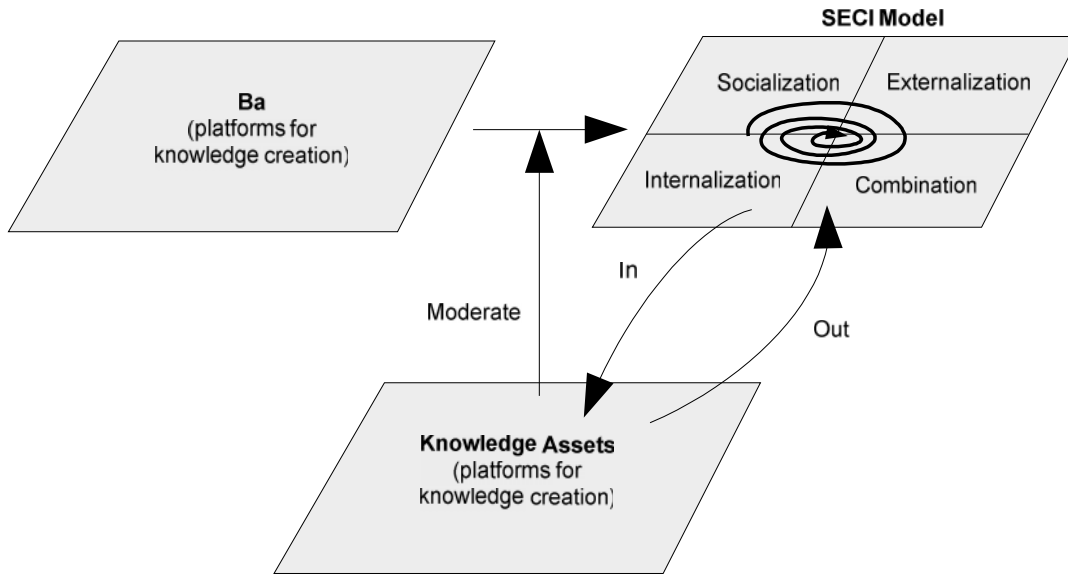
**Combination** – is a process of “...*systemising concepts into a knowledge system*” (ibid: 67), or creating explicit knowledge by bringing together other explicit knowledge from a number of sources. Thus, individuals exchange and combine their explicit knowledge through conversations, meetings, memos, and so on. Combination is knowledge transfer between groups of people, thus it supports an exchange platform for collective knowledge. **Combination allows diffusion and distribution of internal and external knowledge amongst groups of people.** As an example, existing information in computerised databases may be categorised, collected, and sorted in a number of ways to produce new explicit knowledge. Combination key processes include:

- i. Organising and categorising of Knowledge
- ii. Integration of sources of knowledge
- iii. Platform for Collective/collaborative knowledge creation (Edit/processing)
- iv. Searchable/accessible
- v. Distribution
- vi. Collecting internal and external knowledge

**Internalisation** – is a process of embodying explicit knowledge into tacit knowledge, it is closely related to “...*learning by doing*” (ibid: 69). Internalising the experiences gained through the other modes of knowledge creation into individuals’ tacit knowledge, as shared mental models or work practices. **Internalisation is facilitated if the knowledge is captured in documents or conveyed in the form of stories, basically in terms of explicit knowledge.** **Internalisation allows employees to re-experience indirectly the experience of others.** The field books, manuals and personal experiences allow this conversion to take place among individuals. Internalisation can be categorised as:

- i. Access to explicit knowledge
- ii. Re-experience others explicit knowledge
- iii. Asynchronous learning (any place any time)
- iv. Experiential (actualising concepts and methods)

Figure 10 Knowledge Conversion Process



Source: Adapted from Nonaka and Takeuchi (1995); Nonaka et al. (2000; 2001a)

**Ba: Shared Context in motion**

## KNOWLEDGE MANAGEMENT AND HR

### *Video Case Study: Working in Google*

From Fortune 100: <http://uk.youtube.com/watch?v=j6h-gm01Fb0>

From employees: <http://uk.youtube.com/watch?v=JcXF1YirPrQ>

### Perspectives of KM

*As explained by Svetlik and Stavrou-Costea (2007: 199-201)*

Table 1 Perspectives of KM

| <u>Structural/Objective perspective</u>  | <u>Processual/Constructivist perspective</u>  |
|--|---|
| Knowledge is justified true belief (Polanyi, 1986).  | Knowledge is the state or fact of knowing (Webster's dictionary).                         |
| Knowledge as perception – a discrete cognitive entity that people and organization possess | Knowledge as experience – rooted in practice, action and social relationships             |
| Knowledge is objective and static  | Knowledge is dynamic – the process of knowing   |
| Knowledge is resource existing at the individual and collective level                      | Knowledge exists as through the interplay between the individual and the collective level |
| Knowledge is created via social processes  | Knowing occurs via social processes   |
| KM as a management tool for handling existing knowledge                                    | KM as a way of facilitating knowledge creation and sharing                                |

- **Constructivist approach:** knowledge as a subjective state in individuals' minds embedded in organisations and communities –

The proponents of the first view rely on the difference between information and knowledge. Knowledge is meaningful information. Rooney and Schneider (2005) explain that knowledge is bound to human consciousness while data, texts and images are contained in storage media. In a similar fashion, Kakabadse et al. (2003) argue that:

**KM is not about managing knowledge but about changing entire business cultures and strategies of organisations to ones that value learning and sharing. Although some aspects of knowledge, such as culture, organisational structure, communication process and information can be managed, knowledge itself, arguably, cannot . . . Hence, one can manage or support processes of learning rather than managing knowledge.**

The constructivist approach accepts not only individual knowledge but also for knowledge that exists in the social context of groups, organisations and societies. While knowledge is created by and rests in individual employees, it is also created through social interaction and is embedded in the social structure of organisational members.

- **Objectivist approach:** knowledge as an objective state of things.

The proponents of the second view would argue that knowledge management is a **conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organisational performance.** Knowledge is a commodity to be traded and needs to be managed.

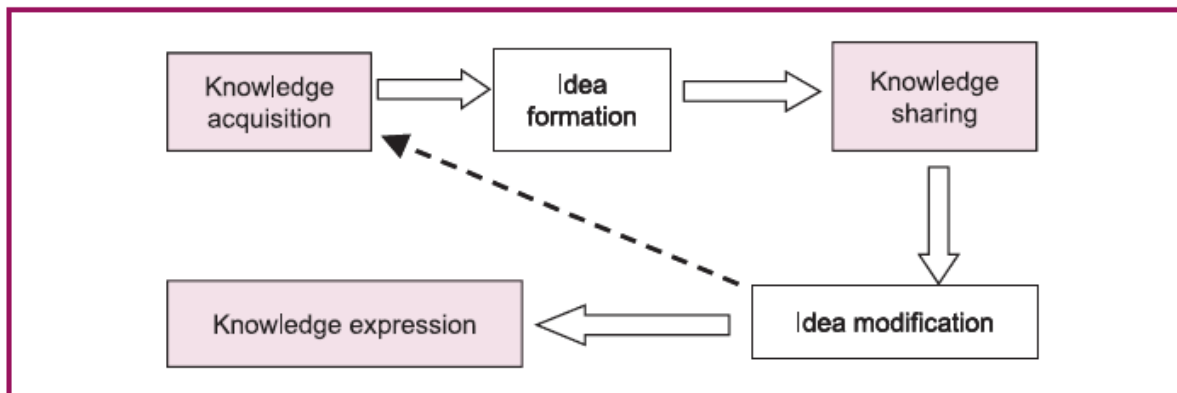
**Both perspectives tend to complement each other**

## Knowledge Cycle

(Svetlik and Stavrou-Costea, 2007: 199-201):

- The first is **knowledge acquisition**, which focuses primarily on searching among various sources of information and knowledge, on their selection, and on ways to bring the existing knowledge in the possession of individuals and organisations;
- The second involves knowledge creation, which focuses on the development and increasing bulk of new knowledge;
- The third is **knowledge transfer, distribution, dissemination and sharing**, aiming for relevant knowledge to reach relevant individuals, groups and organisations as soon as possible; and
- The fourth entails **knowledge utilisation and application** in various environments, which is the ultimate goal of the economic organisations and systems as well as individuals who work for them.

Figure 11 Model of the knowledge creation process



Source: Wang et al. (2006) Factors influencing knowledge productivity in German research groups: lessons for developing countries, *Journal of Knowledge Management*, Vol. 10, No. 4 2006, pp. 113-126.

**Creation of knowledge depends on many organizational factors such as financial resources, human resources and organizational infrastructure. ”**

## Adding KM to HRM

There are three points to remember:

- first, HRM does not manage people as such, but their **personal and interpersonal** (inter-group, organisational) characteristics, which could be considered resources and create organisational advantages; and
- second, human resources are not only brought into the organisation by means of recruitment and selection but also **developed** within the organisation by investment in their personal capacities and deployed by nurturing of interpersonal and inter-group relations.
- Third, how human resources are **composed**; what is their structure and how it is changing? People are evaluated through their competencies, knowledge, know-how, adaptability, network connections and experiences (O'Donnell et al., 2003).

**Hence =**

- Manage the KM elements: **organisational structure, people, culture, process, content, and IT**
- Manage the **retention and attraction of knowledge** (workers)
- **Incentives**: opportunity for self-realisation, payment rewards, career improvement
- **Motivation**: an attractive work environment and fulfilment (what ever that might be)

**HR plays a role in each of these**

- Integration, consultancy and evaluation
- They are engaged in acts of persuasion, explicitly inculcating values into employees by a variety of means.

Read Tyson (1999) and (Svetlik and Stavrou-Costea, 2007: 199-201)

**Strategy**

- **Exploitation**: KM is about *exploiting* the knowledge that already exists in the organisation - sharing, transferring knowledge.
- **Exploration**: through *exploring* knowledge to create new opportunities for the company.
- A balance between exploration and exploitation: **exploitation alone affects the company's competitiveness in time**, while **exploration helps the company to create new opportunities**.

| How Consulting Firms Manage Their Knowledge  |                               |  |
|--|-------------------------------|--|
| CODIFICATION   |                               | PERSONALIZATION  |
| Provide high-quality, reliable, and fast information-systems implementation by reusing codified knowledge.   | Competitive Strategy          | Provide creative, analytically rigorous advice on high-level strategic problems by channeling individual expertise.  |
| <b>REUSE ECONOMICS:</b><br>Invest once in a knowledge asset; reuse it many times.<br>Use large teams with a high ratio of associates to partners.<br>Focus on generating large overall revenues.   | Economic Model                | <b>EXPERT ECONOMICS:</b><br>Charge high fees for highly customized solutions to unique problems.<br>Use small teams with a low ratio of associates to partners.<br>Focus on maintaining high profit margins. |
| <b>PEOPLE-TO-DOCUMENTS:</b><br>Develop an electronic document system that codifies, stores, disseminates, and allows reuse of knowledge.   | Knowledge Management Strategy | <b>PERSON-TO-PERSON:</b><br>Develop networks for linking people so that tacit knowledge can be shared.   |
| Invest heavily in IT; the goal is to connect people with reusable codified knowledge.  | Information Technology        | Invest moderately in IT; the goal is to facilitate conversations and the exchange of tacit knowledge.  |
| Hire new college graduates who are well suited to the reuse of knowledge and the implementation of solutions.<br>Train people in groups and through computer-based distance learning.<br>Reward people for using and contributing to document databases. | Human Resources               | Hire M.B.A.s who like problem solving and can tolerate ambiguity.<br>Train people through one-on-one mentoring.<br>Reward people for directly sharing knowledge with others.                                 |
| Andersen Consulting, Ernst & Young   | Examples                      | McKinsey & Company, Bain & Company   |

Hansen et al. (1999)

## **Getting the Best Fit Between HRM and KM**

### **1. Strategy**

- Find the right fit between management practices and the characteristics of the knowledge process
- Focus on the way that knowledge is applied to strategic objectives

### **2. Job Design and Environment**

- Create an atmosphere where mistakes tolerated, where knowledge to be shared because not equated to power
- Add knowledge-sharing into appraisal criteria, not on a one-off bonus basis
- Emphasise constant learning
- Long-term development of skills, culture and capabilities within the organisation
- Focus on people and relationships

### **3. Motivation and commitment**

- Key factors for individual motivation: Personal growth; Operational autonomy; Task achievement; Money reward
- Organisational culture help to socially integrate individuals who are highly autonomous and individualistic
- Social identities create the sense of being part of an elite group

### **4. Developing Communities of Practice: A group of individuals that collectively create and share knowledge through shared practice**

## **Next Week we would examine how KM and IT:**

Is knowledge management about managing people or managing IT or managing both?

*Dr Richard Boateng, ICITD, Southern University and University of Ghana Business School, 2010*

**Email:** [Richard@pearlrichards.org](mailto:Richard@pearlrichards.org)

## Key Readings:

1. Boateng, R. (2004) *Knowledge Transfer Between Information Systems Development Projects*, MSc Management and Information Systems IDPM, The University of Manchester, Manchester.
2. Brown, J.S. & Duguid, P. (2001). "Knowledge and organization: a social-practice perspective," *Organization Science*, 12(2), 198–213.
3. Cabrera, E.F. & Cabrera, A. (2005). "Fostering knowledge sharing through people management practices," *Int. J. of Human Resource Management*, 16(5); 720–735
4. \*\*Dixon, N. (1994) *The Organisational Learning Cycle: How We Can Learn Collectively*, McGraw-Hill Company, London.
5. \*\*Dixon, N. (2000) *Common Knowledge: How Companies Thrive By Sharing What They Know*, Harvard University Press, Boston.
6. \*\*Gloet, M. & Berrell, M. (2003). "The dual paradigm nature of knowledge management: implications of achieving quality outcomes in human resource management," *Journal of Knowledge Management*, 7(1), 78-89.
7. \*\*Haesli, A. & Boxall, P. (2005). "When knowledge management meets HR strategy: an exploration of personalization-retention and codification-recruitment configurations," *Int. J. of Human Resource Management*, 16(11), 1955-1975.
8. \*\*Hansen, M. T., Nohria, N. & Tierney, T. (1999). "What's your strategy for managing knowledge?" *Harvard Business Review*, 77, 108-116.
9. Iles, P., Yolles, M. & Altman, Y. (2001). "HRM and knowledge management: responding to the challenge," *Research and Practice in Human Resource Management*, 9(1), 3-33.
10. Kakabadse, N.K., Kakabadse, A. & Kouzmin, A. (2003). "Reviewing the knowledge management literature: towards a taxonomy," *Journal of Knowledge Management*, 7(4), 75-91.
11. Malik, A.A. (2008) *How can Web 2.0 Enable Learning in Organisations*, MSc Management and Information Systems IDPM, The University of Manchester, Manchester.
12. \*\*Newell, S., Robertson, M., Scarbrough, H. & Swan, J. (2002). *Managing Knowledge Work*. Chapter 4
13. Nonaka, I. (1994). "A dynamic theory of organizational knowledge creation," *Organization Science*, 5(1), 14–37.
14. Nonaka, I. and Takeuchi, H. (1995) *The Knowledge-creating Company*, Oxford University Press, Oxford.
15. \*\*Nonaka, I. Toyama, R. and Konno, N. (2000) "SECI, Ba and Leadership: a United Model of Dynamic Knowledge Creation", *Long Range Planning*, Vol. 33, pp. 5-34
16. Nonaka, I., Toyama, R. and Byosiere, P. (2001a) "A theory of Organizational Knowledge Creation: Understanding the Dynamic Process of Creating Knowledge" in Dierkes, M., Antal, A., Child, J. and Nonaka, I. (eds.) *Handbook of Organisational Learning and Knowledge*, Oxford University Press, Oxford.
17. Nonaka, I., Reinmoller, P. and Toyama, R. (2001b) "Integrated IT Systems for Knowledge Creation", in Dierkes, M., Antal, A., Child, J. and Nonaka, I. (eds.) *Handbook of Organisational Learning and Knowledge*, Oxford University Press, Oxford.
18. Nonaka, I. and Toyama, R. (2005) "The theory of the knowledge-creating firm", *Industrial and Corporate Change*, Vol. 41(3), pp: 419–436
19. Oltra, V. (2005) Knowledge Management Effectiveness factors: the role of HRM, *Journal of Knowledge Management*, Volume 9, Issue 4, pp.70-86
20. Pyöriä, P. (2005). "The concept of knowledge work revisited," *Journal of Knowledge Management*, 9(3), 116-127.
21. \*\*Raub, S. (2002). "Communities of practice: a new challenge for human resources management," *Research & Practice in Human Resource Management*, 10(2), 16-35.
22. \*\*Svetlik I. and Stavrou-Costea, E. (2007) Connecting human resources management and knowledge management, *International Journal of Manpower*, Volume 26, Issue ¾, pp. 197 - 206
23. \*\*Tyson, S. (1999), "How HR knowledge contributes to organisational performance", *Human Resource Management Journal*, Vol. 9 No.3, pp.42-52.

## OTHER REFERENCES

1. Alberto C. (2001) The Role Of Intelligent Resources In Knowledge Management, *Journal of Knowledge Management*, Vol. 5, Issue 4, pp. 358.
2. Argyris, C. (1999) *On Organisational Learning*, Blackwell Publishing, Malden, Massachusetts.
3. Argyris, C. & Schon, D. (1978) *Organisational Learning: A Theory of Action Perspective*, Addison-Wesley, New York.
4. Argyris, C. & Schon, D. (1996) *Organisational Learning II: Theory, Method and Practice*, Addison-Wesley, Reading, Massachusetts.
5. Boisot, M. (1995) Information Space: A Framework for Learning In Organisations, *Institutions And Culture*, Blackwell, London.
6. Brown, J.S. & Duguid, P. (1991) Organisational Learning and Communities of Practice: Toward a Unified View of Working, Learning and Innovation, *Organisation Science*, Volume 2, Issue 1, pp. 40-57.
7. Buchholz, S. & Roth, T. (1987) *Creating the High-Performance Team*, John Wiley, New York.
8. Castells, M. (1998) End Of Millennium: The Information Age, *Economy, Society And Culture*, Volume 3, Blackwell, Oxford.
9. Chawla, S. (1995) Introduction: The Beginner's Mind, In Chawla, S. & Renesch, J. (eds.) *Learning Organisations, Developing Cultures For Tomorrow's Workplace*, Productivity Press, Portland, OR, pp. 1-10.
10. Chepaitis, E.V. (1994) After The Command Economy: Russia's Information Culture And Its Impact On Information Resource Management, *Journal Of Global Information Management*, Vol. 2, Iss. 1, pp. 5-11.
11. Chourides, P., Longbottom, D., & Murphy, W. (2003) Excellence In Knowledge Management: An Empirical Study To Identify Critical Factors And Performance Measures, *Measuring Business Excellence*, Vol.7, Iss.2, pp. 29.
12. Chua, A. (2002) Taxonomy of Organisational Knowledge, *Singapore Management Review*, Volume 24, Issue 2, pp. 69-76.
13. Churchman, C.W. (1971) *The Design of Inquiring Systems: Basic Concepts of Systems and Organisation*, Basic Books, New York.
14. Clegg, C.W., Coleman, P., Hornby, P., McClaren, R., Robson, J., Carey, N. & Symon, G. (1996) Tools To Incorporate Some Psychological And Organisational Issues During The Development Of Computer-Based Systems, *Ergonomics*, Volume 39, Issue 3, pp. 482-511.
15. Cohen, M.D. & Sproul, L.E. (1991), "Editors' introduction", *Organisation Science*, Volume 2 Number 1, pp. 1-3, (Special Issue on Organisational Learning Papers in honour of <and by> James G. March) In Wang, C.L., & Ahmed, P.K. (2003) Organisational Learning: A Critical Review, *The Learning Organisation*, Volume 10, Issue 1; pp. 8-18.
16. Cook, S.D.N. & Yanow, D. (1993) Culture And Organisational Learning, *Journal of Management Inquiry*, Volume 2, Number 4, In Cohen, M. D. & Sproull, L. S. (eds) (1996), *Organisational Learning*, Institute For Operations Research And The Management Sciences (INFORMS), Sage Publications, Inc., Thousand Oaks, California.
17. Crossan, M.M., Lane, H.W., White, R.E. & Rush, J.C. (1994) *Learning Within Organisation*, Working Paper Number 94-06, The University of Western Ontario Richard Ivey School of Business, London, Ontario.
18. Culp, G. & Smith, A. (1992) *Managing People For Project Success*, Van Nostrand Reinhold, New York.
19. Daft, R.L. & Huber, G.P. (1987) How Organisations Learn: A Communication Framework, *Research In The Sociology Of Organisations*, Volume 5, pp.1-36.
20. Dane, F.C. (1990) *Research Methods*, Brooks/Cole, Pacific Cole, California.
21. Davenport, T. (1997) 'Information Ecology, Mastering The Information And Knowledge Environment', Oxford University Press, Oxford
22. Davenport, T. H. & Marchand, D. A. (2000) 'Is KM Just Good Information Management?', In T. H. Davenport, T. Dickson & D. A. Marchand (eds) *Mastering Information Management Complete MBA Companion in Information*



*Management*, Financial Times, Prentice Hall, London, pp.165-169.

23. Davenport, T. & Probst, G. (2001) *Knowledge Management Case Book - Siemens, Best Practice*, MCD Verlag And Willey & Sons, Germany.

24. Davenport, T. & Prusak, L. (1998) *Working Knowledge*, Harvard Business School Press, Cambridge, Massachusetts.
25. Davenport, T. & Prusak, L. (2000) *Working Knowledge: How Organisations Manage What They Know*, Harvard Business School Press, Cambridge, Massachusetts.
26. Deetz, S. (1996) Describing Differences In Approaches To Organisation Science: Rethinking Burrell And Morgan and Their Legacy, *Organisation Science*, Volume 7, Number 2.
27. De Freitas, R. (2002) *Knowledge Management for Competitive Advantage: The Channel of Core Competence - Dissertation*, MSc Management and Information Systems IDPM, The University of Manchester, Manchester.
28. De Haan, R. (2004) Both Glad And Sad, *Our Daily Bread*, July 27 2004, [Online], Available: <http://www.gospelcom.net/rbc/odb/odb-07-27-04.shtml>, [20<sup>th</sup> August, 2004].
29. DiBella, A., Nevis, E. & Gould, J. (1996) 'Organisational Learning As A Core Capability', In Moingeon, B. & Edmondson, A. *Organisational Learning And Competitive Advantage*, Sage Publications Ltd., London.
30. Dixon, N. (1994) *The Organisational Learning Cycle: How We Can Learn Collectively*, McGraw-Hill Company, London.
31. Dixon, N. (2000) *Common Knowledge: How Companies Thrive By Sharing What They Know*, Harvard University Press, Boston.
32. Drucker, P.F. (1993) *Post-capitalist society*, Butterworth Heinemann, Oxford.
33. Edmondson, A. C., Winslow, A. B., Bohmer, R. M. J. & Pisano, G. P. (2003) Learning How and Learning What: Effects of Tacit and Codified Knowledge on Performance Improvement Following Technology Adoption, *Decision Sciences*, Volume 34, Issue 2, pp. 197.
34. Field, L. (1997) Impediments To Empowerment And Learning Within Organisations, *The Learning Organisation*, Volume 4, Number, pp. 149-58.
35. Fiedler, J. (1978) *Field Research: A Manual for Logistics and Management of Scientific Studies in Natural Settings*, Jossey-Bass, San Francisco.
36. Fleck, J. (1994) Learning By Trying: The Implementation Of Configurational Technology, *Research Policy*, Volume 23, 637-652.
37. Freire, P. (1970) *Pedagogy of the Oppressed*, Penguin, Harmondsworth.
38. Friedlander, F. (1984) 'Patterns Of Individual And Organisational Learning', In Srivastva, S. (ed.) *The Executive Mind*, Jossey-Bass, San Francisco In Jossey-Bass, San Francisco, pp. 192-220, In Dixon, N. (1994) *The Organisational Learning Cycle: How We Can Learn Collectively*, McGraw-Hill Company, London.
39. Frost, P.J., Moore, L.F., Louis, M.R. Lundberg, C.C., & Martin, J. (1991) *Reframing Organisational Cultures*, Sage Publications, Newbury Park, California.
40. Garvin, D.A. (1993) Building A Learning Organisation, *Harvard Business Review*, July/August, pp. 78-91.
41. Gherardi, S. (2002) Organisational Learning In Sorge, S. (ed) *Organisation*, Thomson Learning, London.
42. Gunnlaugsdottir, J. (2003) Seek And You Will Find, Share And You Will Benefit: Organising Knowledge Using Groupware Systems, *International Journal of Information Management*, Volume 23, Issue 5, pp. 363-380.
43. Handy, C. (1995) 'Managing The Dream', In Chawla, S. & Renesch, J. (eds.) *Learning Organisations, Developing Cultures For Tomorrow's Workplace*, Productivity Press, Portland, OR, pp. 44-55.
44. Hatano, G. & Inagaki, K. (1991) 'Sharing Cognition Through Collective Comprehension Activity', In Resnick, L. B., Levine, J. M. & Teasley, S.D. (eds.) 'Socially Shared Cognition', American Psychological Association, Washington DC, pp. 332-348, In Dixon, N. (1994) *The Organisational Learning Cycle: How We Can Learn Collectively*, McGraw-Hill Company, London.
45. Heeks, R. (2003) *Information and Organisational Tasks: Decision – Making and Communication, Fundamentals of Information and Information Systems Course Unit Handout*, IDPM, University of Manchester, Manchester, [8<sup>th</sup> October].
46. Herriot, P. & Pemberton, C. (1995) *Competitive Advantage Through Diversity – Organisational Learning From*



47. Hope, J. & Hope, T. (1997) 'Issue 3 Knowledge Management – Leverage Knowledge For Competitive Advantage', In Hope, J. & Hope, T. (eds.), *Competing In The Third Wave - The Ten Key Management Issues Of The Information Age*, Harvard Business School Press, Boston, Massachusetts, pp.65-85.
48. Huber, G.P. (1989) 'Organisational Learning: An Examination of The Contributing Processes And A review of the Literature', prepared for the NSF-Sponsored Conference on Organisational Learning, Carnegie-Mellon University, May 18-20, In Argyris, C. (1999) *On Organisational Learning*, Blackwell Publishing, Malden, Massachusetts.
49. Huber, G.P. (1991) Organisational Learning: The Contributing Processes And The Literatures, *Organisation Science*, Volume 2, Issue 1, pp.88-115.
50. Jacques, R. (2000) 'Conclusion: Theorising Knowledge As Work: The Need For A 'Knowledge Theory Of Value'', In Prichard, C., Hull, R. Chumer, M. & Willmott, H. (eds.) *Managing Knowledge, Critical Investigation of Work And Learning*, Macmillan Press Ltd., Basingstoke, Hampshire, pp. 199-215.
51. Jones, S. (1996) *Developing a Learning Culture Empowering People to Deliver Quality, Innovation and Long-term Success*, McGraw-Hill Book Company, New York.
52. Jones, M.C. & Price, L.R. (2004) Organisational Knowledge Sharing in ERP Implementation: Lessons from Industry, *Journal of Organisational and End User Computing*, Volume 16, Issue 1, pp. 21.
53. Kessels, J. W. M. (2001) Learning In Organisations: A Corporate Curriculum For The Knowledge Economy, *Futures*, Volume 33, Issue 6, pp. 497-506.
54. Kim, D.H. (1993) The Link Between Individual And Organisational Learning, *Sloan Management Review*, pp. 37-50.
55. Kluge, J., Stein, W. & Licht, T. (2001) *Knowledge Unplugged*, Palgrave, Basingstoke, Hampshire.
56. Liao, S. (2003) Knowledge Management Technologies And Applications - Literature Review From 1995 To 2002, *Expert Systems with Applications*, Vol. 25, Iss.2 , pp.155-164.
57. Levitt, B. & March, J.G. (1988) 'Organisational Learning', In Cohen, M. D. & Sproull, L. S. (eds), *Organisational Learning*, Institute For Operations Research And The Management Sciences (INFORMS), Sage Publications, Inc., Thousand Oaks, California.
58. Martz, W.B. & Shepherd, M.M. (2003) Testing For The Transfer Of Tacit Knowledge: Making A Case For Implicit Learning, *Decision Sciences, Journal of Innovative Education*, Volume 1, Number 1.
59. Matlay, H. (2000) 'Organisational Learning In Small Learning Organisations', *Education And Training*, Volume 42, Number 415, pp. 202-10, In Wang, C.L., & Ahmed, P.K. (2003) *Organisational Learning: A Critical Review*, The Learning Organisation, Volume 10, Issue 1; pp. 8-18.
60. Nahapiet, J. & Ghoshal, S. (1998) Social Capital, Intellectual Capital, And The Organisational Advantage, *Academy of Management Review*, Volume 23, Issue 2, pp. 242-266.
61. Nelson, R.R. & Winter, S.G. (1982) *On Social Change and History: Aspects of Theory of Westem Theory of Development, Economic Change*, Belknap Press of Harvard University Press, Boston.
62. Newell, S., Robertson, M., Scarbrough, H. & Swan, J. (2002) *Managing Knowledge Work*, Palgrave, Basingstoke, Hampshire.
63. Nonaka, I. (1994) 'A Dynamic Theory Of Organisational Knowledge Creation', *Organisation Science*, Volume 5 Issue 1, pp.14-37, In Newell, S., Robertson, M., Scarbrough, H. & Swan, J. (2002) *Managing Knowledge Work*, Palgrave, Basingstoke, Hampshire, pp. 3-20).
64. Nonaka, I. & Takeuchi, H. (1995) *The Knowledge-creating Company*, Oxford University Press, Oxford.
65. O'Connor, G. & Smallman, C. (1995) The Hybrid Manager: A Review, *Management Decision*, Volume 33, Issue 7, pp.19-29.
66. O'Reilly, C.A. & Chatman, J.A. (1996) Culture As Social Control: Corporations, Cults, And Commitment, in Staw, B.M. & Cummings, L.L. (eds.) *Research in Organisational Behaviour*, Volume 18, JAI Press, Greenwich, Connecticut, pp. 157-200.
67. Pettigrew, A.M. (1987) Context And Action In The Transformation Of The Firm, *Journal of Management Studies*, Volume 24 Number 6, pp. 649-70.
68. Polanyi, M. (1958) 'Personal Knowledge', University of Chicago Press, Chicago.
69. Polanyi, M. (1962) 'Personal Knowledge', University of Chicago Press, Chicago.

70. Polanyi, M. (1966) 'The Tacit Dimension', Doubleday, Garden City, New York, In Edmondson, A. C., Winslow, A. B., Bohmer, R. M. J. & Pisano, G. P. (2003) Learning How and Learning What: Effects of Tacit and Codified Knowledge on Performance Improvement Following Technology Adoption, *Decision Sciences*, Volume 34, Issue 2, pp. 197.
71. Popper, M. & Lipshitz, R. (2000) Installing Mechanisms And Instilling Values: The Role Of Leadership In Organisational Learning, *The Learning Organisation*, Volume 7, Number 3, pp. 135-44.
72. Revans, R. (1982) *The Origins and Growth of Action Learning*, Chartwell Bratt, Bromley.
73. Revans, R. (1983) 'ABC of Action Learning', Chartwell-Bratt, London, In Dixon, N. (1994) *The Organisational Learning Cycle: How We Can Learn Collectively*, McGraw-Hill Company, London.
74. Romme, G. & Dillen, R. (1997) Mapping The Landscape Of Organisational Learning, *European Management Journal*, Vol. 15 No. 1, pp. 68-78.
75. Roshi, S., Zen Mind, 'Beginner's Mind', In Chawla, S. (1995) Introduction: The Beginner's Mind, in Chawla, S. & Renesch, J. (eds.) *Learning Organisations, Developing Cultures For Tomorrow's Workplace*, Productivity Press, Portland, OR, pp.1.
76. Senge, P. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organisation*, Doubleday, New York.
77. Simon, H. A. (1991) 'Bounded Rationality And Organisational Learning', *Organisation Science*, Volume 2, pp.125-134, In Chua, A. (2002) Taxonomy of Organisational Knowledge, *Singapore Management Review*, Volume 24, Issue 2, pp. 69-76.
78. Spender, J.C. (1994) Knowing, Managing and Learning: A Dynamic Managerial Epistemology, *Management Learning*, Volume 25, pp. 387-412.
79. Spender, J.C. (1996) Making Knowledge the Basis of a Dynamic Theory of the Firm, *Strategic Management Journal*, Volume 17, Issue 52, pp. 45-62.
80. Swieringa, J. & Wierdsma, A.F.M (1989) 'Op Weg Naar Een Lerende Organisatie', Wolters-Noordhoff, Groningen, In Kessels, J. W. M. (2001) Learning In Organisations: A Corporate Curriculum For The Knowledge Economy, *Futures*, Volume 33, Issue 6, pp. 497-506.
81. Thompson, J.D. (1967) *Organisations In Action*, McGraw Hill, New York.
82. Torbert, W. (1991) *The Power of Balance: Transforming Self, Society, And Scientific Inquiry*, Sage, Thousand Oaks, California.
83. Tushman, M.L. & Scanlan, T.J. (1981) Boundary Spanning Individuals: Their Role In Information Transfer And Their Antecedents, *Academy of Management Journal*, Volume 24, Issue 2, pp.289-305.
84. Walsh, J. & Ungson, P. (1991) *Organisational Memory*, *Academy of Management Review*, Volume 16, Number 1, pp. 57-91.
85. Walsham, G. (2001) Knowledge Management: The Benefits and Limitations of Computer Systems, *European Management Journal*, Vol. 19, Iss.6, pp.599-608.
86. Wang, C.L., & Ahmed, P.K. (2003) Organisational Learning: A Critical Review, *The Learning Organisation*, Volume 10, Issue 1, pp. 8-18.
87. Webber (1997) 'What's So New?', In Issue 3 *Knowledge Management – Leverage Knowledge For Competitive Advantage*, J. Hope & T. Hope, in *Competing In The Third Wave - The Ten Key Management Issues Of The Information Age*, J. Hope, & T. Hope, Harvard Business School Press, Boston, Massachusetts, pp.65-85.
88. Weick, K.E. (1979) Cognitive Processes In Organisations, *Research In Organisational Behaviour*, Volume 1, pp.41-47.
89. Weick, K.E. (1985) 'The Significance Of Corporate Culture', In Frost, P., Moore, L., Louis, M., Lundberg, C. & Martin, J. (Eds), *Organisational Culture*, Sage, Beverly Hills, CA, pp. 381-9.
90. Zander U., & Kogut, B. (1995) Knowledge And The Speed Of The Transfer And Imitation Of Organisational Capabilities: An Empirical Test, *Organisation Science*, Volume 6, Issue 1, pp. 76-91.