A Process Framework to Capture Tacit Knowledge Using Storytelling

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ABSTRACT

One of the main challenges in knowledge management is to convey tacit knowledge. Furthermore, there is also a possibility that an expert have difficulties in articulating and conveying this tacit knowledge. Nonetheless, storytelling in knowledge management (KM) context is seen as an effective tool to communicate knowledge, particularly tacit knowledge. While people share stories through face-to-face interaction, we cannot assert that people will learn from this interaction. Firstly, this interaction is not captured and secondly, the knowledge exchanged in the interaction tend to be unstructured which would result in the loss of knowledge value. This paper presents the development of a process framework to construct knowledge story. This framework involves the capturing of knowledge and encapsulates that knowledge into a narrative form

Keywords: Tacit Knowledge Transfer, Tacit Knowledge Capture, Storytelling.

I INTRODUCTION

Malaysian corporations are serious in considering knowledge management and starting to initiate their own knowledge management programs. A number of local institutions and government-linked companies are known to have set-up KM initiatives, including Multimedia Development Corporation (MDC), MIMOS, INTAN, MAMPU, MINT, SIRIM, Khazanah Nasional, Telekom Malaysia (TM), TM R&D, Tenaga Nasional Berhad (TNB) and Petronas Carigali. In the private sector, pioneers include Protasco, SpeedToyz, Cosmos Electronic, Sunway City and ASEAN Bintulu Fertiliser (Chowdury, 2006).

In order for organisations to stay competitive, it is important for the employees to be equipped with the necessary explicit and tacit knowledge. Explicit knowledge resides in manuals, policies and procedures. The tacit knowledge resides in employees head such as experience in handling major projects or perhaps insights and ideas on how to improve a business process. As such, this paper will focus on the tacit knowledge of organisations.

The intention of capturing tacit knowledge is to address the problem that comes with the mobility of the organisation's workforce. Every year, organisations experiencing staff retirement and staff transfer which they take away with them years of knowledge that has not been captured.

One of the main challenges of knowledge management is to capture tacit knowledge (Linde, 2001). One of the ways to capture tacit knowledge is through storytelling. Storytelling is a powerful tool in knowledge capturing as storytelling is a natural and direct behaviour. Stories provide a bridge between the tacit and the explicit form of knowledge as stories conveys the speaker's moral attitude (Gabriel, 2000). Storytelling is a powerful tool in knowledge capturing as storytelling is a natural and direct behaviour. Stories provide a bridge between the tacit and the explicit form of knowledge as stories conveys the speaker's moral attitude (Gabriel, 2000). Stories are a form of narrative (Ruggles, 2002; Sole, 2002) but not all narrative are good knowledge sharing stories (Ruggles, 2002; Valle, Prinz, & Borges, 2002). Therefore, the notion of a good and effective story in transferring tacit knowledge is still unclear.

While face-to-face interaction is effective in communicating tacit knowledge but we cannot assert that people will learn from that interaction especially if the interaction is unstructured which would result in the loss of knowledge value. Some experts also have difficulties in transferring their tacit knowledge to less-experienced colleagues through stories. There are a few reasons of the problem. Firstly, experts are not professional storytellers. Their stories will be unstructured and very abstract hence making it difficult for others to understand. Secondly, the high level language used by the expert individuals might not be fully understood by non-expert individuals even though they share the context. As such, there must be a framework that could monitor and control the development of stories in the organization. The framework must be able to structure the stories so that the understanding and the identification of knowledge in the stories is enhanced. Therefore, this paper proposes a storytelling framework that could provide a control mechanism to ensure that

the stories told in organization are effective in transferring tacit knowledge.

As such, there is a need to establish a framework that guides organisations in producing an organisation story that is knowledge worthy. This paper presents the development of a framework to construct stories used in knowledge transfer context. This framework includes the necessary components such as the process, the roles to execute the process and also the outcome.

II   STORYTELLING IN KNOWLEDGE MANAGEMENT

Storytelling is an ancient and traditional way of passing on complex and multidimensional information and ideas through narrative (Ruggles, 2002). It exists in many domains and in many forms. From an artistic point of view, storytelling is the art of using language, vocalization, and/or physical movement and gesture to reveal the elements and images of a story to a specific, live audience. A central, unique aspect of storytelling is its reliance on the audience to develop specific visual imagery and detail to complete and co-create the story (Katzeff & Ware, 2006). Organisational story is defined as a detailed narrative of past management actions, employee interactions, or other intra- or extra-organisational events (Swap, Leonard, Shields, & Abrams, 2001).

Storytelling is defined as orally communicating ideas, beliefs, personal stories and life-lessons (Groce, 2004). This definition reflects the tacit knowledge that only resides in the head of an individual. Storytelling is considered as an old skill but in a new context: Knowledge Management (KM) (Groce, 2004). Storytelling in knowledge management is used as a technique to describe complex issues, explain events, understand difficult changes, present other perspectives, make connections and communicate experience. A great deal of research and literature has been dedicated to the role that storytelling plays in effective knowledge transfer. This can be seen from the work on the role of stories among disparate project members (Groce, 2004), the role of stories in representing tacit knowledge (LeBlanc & Hogg, 2006) and also the tools used to create and construct organisational stories (Appan, Sundaram, & Birchfield, 1999; Bradner, Kellogg, & Erickson, 1999; Linde, 2001).

In order to successfully implement storytelling initiatives, it is important to identify the challenges of storytelling. Firstly, management support is crucial to the success of the storytelling initiatives. Without support and sponsorship from the government, employees will not see the need to transfer knowledge. The lack of support from the

management could also suppress the storytelling culture in the organisation. The management of a PETRONAS organisation, conduct lunch talks and seminars so that employees can share their experience to other colleagues. There is also a challenge in producing an worthy knowledge sharing stories. Some experts have difficulties in transferring their tacit knowledge to less-experienced colleagues through stories. Firstly, experts are not professional storytellers. Their stories will be unstructured and very abstract hence making it difficult for others to understand. Secondly, the high level language used by the expert individuals might not be fully understood by non-expert individuals. (Ioffreda & Gargiulo, 2008) reported a comprehensive study conducted by The International Association of Business Communicators on storytelling in organisations which summarizes the challenges of implementing storytelling as lack of a storytelling culture and the failure of the management to understand on the purpose of stories and how to use those stories to benefit the organisation. Large organisations are frustrated in collecting and finding ways to use those stories because they do not understand how to use those stories. Without proper culture and the support from the management, employees will be reluctant to contribute and participate in the storytelling initiatives. The study also cited the time needed to collect and package stories as the challenges in deploying storytelling in organisations which implies that employees that the process of storytelling is a burden. Legal issues in obtaining clearance to use stories are also a challenge cited by the study.

Tacit knowledge can be transferred through highly interactive conversation shared experience, brainstorming, storytelling and freedom to express fully formed ideas (Brown & Duguid, 2000; Zack, 1999). Storytelling in knowledge management context is seen as a powerful management tool to communicate tacit knowledge in organisation. (Bailey, 2005) cited Larry Prusak, the founder of and executive director of the Institute of Knowledge Management, keynote address at a national conference on knowledge management in the United States where he distilled what was important about knowledge management in a single word: storytelling. Prusak also said that knowledge is not in a database and it is not in computer applications but it is in our stories. The act of telling stories is deemed ancient. It is known that tacit knowledge cannot be completely abstracted into categorical and analytical form. This has made organisation to look at the role and value of narrative and anecdotal information conveyed in the form of sharing experience through stories is emerging in various

professions as a tool to exchange and consolidate knowledge. The application of storytelling can be seen in such organisation as NASA (Bailey, 2005; Post, 2002), Bristol-Myers Squib (LeBlanc & Hogg, 2006) and World Bank (Bailey, 2005; Post, 2002). Stories told in organisations are most effective when they focus on teaching, inspiring, motivating, and adding meaning (LeBlanc & Hogg, 2006). Stories work best when they evolve from personal experience, ideas, and questions that relate to the issues at hand (Yoder-Wise & Kowalski, 2003). Research suggests that sharing experiences through narrative builds trust, cultivates norms and transfer tacit knowledge facilitates unlearning and generates emotional connections (Sole & Wilson, 2002). Sharing knowledge through stories allows people to listen to other people's approaches to problems (Baker-Eveleth, Sarker, & Eveleth, 2005).

Although externalizing tacit knowledge is a challenge to organizations due to its highly personal and difficult to formalize (LeBlanc & Hogg, 2006; Valle et al., 2002), it is not impossible to capture (Badaracco, 1991; Hamel, 1991) and is commonly and easily conveyed by narrative (Gabriel, 2000). Tacit knowledge can be the experience, personal belief or skills of the employees. Since it resides in the head of the employees, tacit knowledge becomes important to organization. If an experienced employee leaves the organization, the employee brings along that tacit knowledge and that knowledge will be erased from the organization (Zimmermann, Atwood, Webb, & Kantor, 2000). Stories are useful in knowledge management because people learn things easily from stories which make it capable of externalizing tacit knowledge (LeBlanc & Hogg, 2006; Post, 2002; Valle et al., 2002).

III   RELATED WORK

In knowledge management domain, there seems to be a lack of dedicated literatures on constructing knowledge story. While literatures on traditional story construction are many, knowledge story construction is only mentioned in storytelling applications literatures. Even so, the story construction aspect of these applications is not being emphasized. The following section discuss two knowledge story applications namely (Santoro & Brezillon, 2005), (Acosta et al., 2004) and The Well (Katzeff & Ware, 2006).

A. TellStory

Santoro & Brezillon (2005) presented a storytelling application called TellStory built under the Zope platform. TellStory supports group storytelling technique in which stories are created collectively thus helping in the elicitation and building of a shared context. The contextual information related to the stories are also made explicit. When stories are told in groups, it is important to ensure that the contexts are shared by each of the group members. The stories are seen as a sequence of events that are tied to each other. The features of TellStory with regards to story construction are inclusion, edition, exclusion, union and fragmentation of events. TellStory helps in externalizing the context from the events in two ways. The first one is informally through the users' events and the comments that they posted on other events. The second way is through a Context Framework. The framework helps the tellers to structure their thoughts and giving the events more depth through the six questions namely who? when? where? what? how? and why? The stories are in written form. Individuals can participate on a story by performing the following roles: moderator, teller, editor and commentator.

B. StoryMapper

Acosta et al., (2004) externalizes tacit knowledge from the members of a group using group storytelling techniques which is supported by conceptual maps. The uses of conceptual maps provide the stories in a structure form and also represent the knowledge in visual representation. They developed a prototype called StoryMapper. The authors regard stories as a sequence of events. In StoryMapper, the events are told through a predefined worksheet. The worksheet contains information such as date, time, place and the events itself. This worksheet represents a node in the conceptual map. The nodes are link to at least another node with its corresponding semantics. The activity ends with a graph representing each of the story events. The time sequence of events is included in the graph.

C. The Well

Katzeff & Ware, (2006) presented the design of a video storytelling application that is located in a booth for a festival organization. The purpose of the video storytelling booth is to make volunteer festival workers' roles visible by recording personal accounts of their work within the organization on video. The video storytelling booth is called The Well. User enters The Well and confronts with a computer screen and a decorative sculpture of a face. The user communicates with an animated monkey on screen. The role of the animated monkey in the design was to induce a playful atmosphere for the user to communicate. After the user has finished with the story, the clips are recorded. In order to use The Well the user had to perform the following,

- Enter the booth and preferably draw the curtain behind her/him.

- Press the bar code on their functionary identification card to a red light on the wall to the right of the screen.

- Press a button to start the animation and recording.

- Calibrate their face in front of the camera in order to fit the face space on the screen

- Start speaking

- Stop speaking when the animation stops after one minute.

However, the Well does not require any roles to control and monitor the stories. As such, there is doubt whether personal stories told through the Well are really knowledge-worthy stories.

IV   RESEARCH METHODS

Generally, this study attempts to understand how knowledge story is constructed. Therefore, in order to understand this process, a qualitative approach is deemed appropriate. The participants of this study were students from a knowledge management course offered at a university. The justification of selecting this group of participants is the understanding that this group has on the concept of knowledge management and knowledge transfer and secondly, they understand the researcher's intention in organizing the story construction workshop.

The interview sessions were conducted in workshop. The workshop which is dubbed as the story construction workshop, gathers participants to construct knowledge stories. Group interview sessions were conducted after the workshop to gather their experience in constructing a knowledge story.

A total of 5 workshop sessions were conducted with 4 or 5 participants in each workshop session. In each workshop session, the groups were briefed on the objective of the workshop, the running of the workshop and the researcher's expectation. Knowledge stories were written in pairs. The researcher offers a pair an explicit knowledge source in which the knowledge story will be based on. Nonetheless, there are pairs who prefer to write about their own experience. Once the pair has finished writing the knowledge story, they were re-grouped to discuss on the process. Semi-structured interviews were used in the group discussions to gain in-depth understanding on how participants construct knowledge stories. The group interview sessions allow each of the participants in the group to clarify question phrasing as well as to ensure that participant's responses addressed the objectives of this study. The interview questions primarily focused on their approach in constructing the stories

and most importantly on the approach that they took to ensure that the knowledge is encapsulated in the narrative. The duration for each workshop sessions including discussion took approximately 2 hours. Further discussions were also conducted to gather feedbacks on the constructed stories. All of the sessions with the participants were video-recorded. The recorded interview sessions were further transcribed and analyzed hermeneutically. Qualitative data analysis software, Nvivo 8, assists the researcher in organizing and analyzing the data.

V   FINDINGS

The findings indicate that knowledge story construction process consists of 4 steps which are Capture Knowledge From Source, Knowledge Articulation, Develop Story Sequence, Embed Knowledge and Review. Figure 1 shows the knowledge story construction process framework.
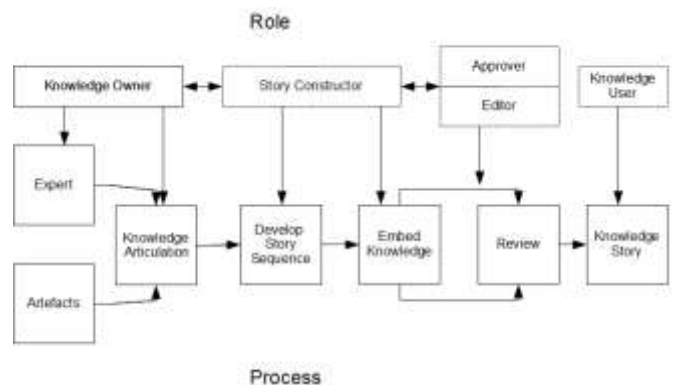

Figure 1: Knowledge Story Construction Process Framework.

A. Capture Knowledge From Source

The process starts with the knowledge source. The knowledge source is either comes from an expert or an artefact. Each of the knowledge has an owner or a group of owners. If the knowledge is tacit, the owner is the person who experiences that knowledge. Knowledge in document form is owned by either a person or a department. For example, the guidelines stated in the employees' handbook is owned by the Human Resource Department.

The knowledge source is either a procedural, declarative or episodic in tacit or explicit form. Procedural knowledge is knowledge that is based on procedures such as the steps in providing technical support to computer users. Declarative knowledge is based on facts and concepts. In the story construction workshop, knowledge transfer factors are used to represent declarative knowledge. Episodic knowledge is based on events that happened in the past. Most of the stories constructed in the workshop are based on the author's experience.

B. Knowledge Articulation

Preliminary discussions between participants involve understanding the knowledge source. This is noticeable for participants who constructed stories based on an explicit knowledge regardless whether it is a procedural or declarative. They got together and discuss on their perceived understandings of the knowledge source. They attempted to familiarize themselves with the subject of the knowledge and to comprehend the content of the knowledge source.

The participants used the term understanding and described how they try to obtain a clearer picture of the subject matter. The following responses imply the understanding of knowledge before stories can be constructed.

> *The first thing before we met, we read first. Then we come into the meeting. Firstly, we talked about her understanding of the knowledge. Then I will tell my opinion. Then we discuss. (I-21, Line 28-30)*

> *We need to understand the knowledge transfer factors so we highlighted some keywords. This is to ensure that we understand the same concept (I-25, Line 62-63).*

The understanding of the knowledge source allows most of the participants to identify key items (i.e keywords, concepts or factors) which forms the layout of the story structure.

C. Develop Story Sequence

The articulation of knowledge source yields a list of items, events or phases. These lists are further organized which results in the flow of the story, story components and structure. One participant stated,

> *When we first thought about our topic, we just list it down first, and then write. We listed our points on paper so that could see the flow of events. Then we organize the points and expand the points into story. (I-34, Line 51-53)*

> *To convey the knowledge, we construct the by having one paragraph to depicts one knowledge transfer factor. In the paragraph, we explain the factor and also the people with example. (I-20, Line 58-60)*

Procedural knowledge source requires less effort in organizing the flow of events due to its procedural nature and temporal elements. Episodic knowledge source are structured based on events that happens in a person's life. The events derive from this knowledge source can either be in time-based or task-based. The articulation of a declarative knowledge source generates a list of items in the form of concepts, factors or issues. The organization of concepts, factor or issues is a challenge due to the lack of temporal nature. This requires the imagination and the creativeness of the story constructors to determine the chronology in the story.

D. Embed Knowledge

The phase Embed Knowledge is an integral phase in the knowledge story construction process. Knowledge is embedded in story in two ways. Firstly, knowledge can be wrapped in the form of lessons learned in which the story includes undesirable settings or events that the readers can learn from it. Secondly, stories provide knowledge with context. Context is presented in a story through the use of examples or through the use of the 5W 1H framework. One participant who constructed her knowledge story stated that,

> *We decided to use bad situation settings so that there is a lesson learned in the story. For example in the story, I prepare my resume a bit late. So, people who read this can learn from it and prepare resume early.(I-29, Line 106-107)*

The knowledge wrapper is responsible in identifying the knowledge and ensures that the knowledge is embedded in the story. Knowledge is embedded in the story in the form of lessons learned and contextual information with the purpose of enhances understanding and enhances awareness. The knowledge wrapper ensures that the knowledge is encapsulated in the story and ensures that there is a link that connects the purpose of the knowledge source to the story. A knowledge story should have a purpose which needs to be stated in the story. The purpose of the story implies relevancy. Knowledge has to be deemed relevant to the knowledge recipient in order for knowledge transfer to occur.

E. Review

It is absolute necessary for a knowledge story to be reviewed and edited to ensure that knowledge is embedded in the story. The need of an editor and approver to review the draft of the story is crucial. The editor checks the accuracy of the events, grammatical errors and coherency of the story. The following participants comment,

> *My concern is how to make the readers understand the story. First, I provide them with a situation. I start the story with a*

> *dialog. In the dialog I said, I regret choosing this company. Readers will ask why he hates the company. From there, I grab the audience attention (I-31, Line 101-105).*
>
> *I checked for accuracy of events and the way he writes. If it doesn't sound right to me, I will just correct it. (I-32, Line 71-72)*

The manager or person with higher authority acts as the approver to approve the knowledge story for publishing. Any feedbacks from the editors and approvers will be forwarded to the story constructor for modification of the story. The involvement of editor and knowledge wrapper is crucial in producing the final Knowledge story.. Therefore, the writing and revising the story is done in an iterative manner until a final Knowledge story is produced.

VI   CONCLUSION

Storytelling in knowledge management context is seen as a powerful management tool to communicate knowledge in organization. This study presents process framework to construct a knowledge story. Data are gathered through workshop sessions and analyzed using qualitative methods. The process framework developed in this study modifies the generic knowledge transfer process by integrating stories as the medium of knowledge. Stories are used most naturally in communicating experiential knowledge regardless the form and type of knowledge. In the workshop, participants write stories based on different types and forms of knowledge source. Based on the knowledge source, the participants begin to construct the story. From the interviews and discussions, the participants follow a series of steps before finalizing on the knowledge story. The participants also assume a number of roles when writing the story. The purpose of these roles is to ensure that the knowledge story not only follows the conventional way of story writing but also maintaining the knowledge aspects of the story. This framework can be used by KM managers as a guidance to produce knowledge stories. Furthermore, this framework can also be used as part of the story construction features in a computer-based Knowledge storytelling application.

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