

## Model\_isi; Developing a Model for Indigenous Knowledge Management

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### Abstract

*This article presents the initial development of a communication model (Model\_isi) as a mean of gathering, preserving and transferring indigenous knowledge in knowledge management. The article first discusses the need for an appropriate complimentary model for indigenous knowledge management which differs from the existing methods and models. Then the paper suggests the newly developed model for indigenous knowledge management which can be implemented as a complementary approach for the existing scientific method. The paper further presents the effectiveness of the developed method in reflecting upon a pilot demonstration carried out on selected indigenous communities of Sri Lanka.*

**Keywords:** *Indigenous Knowledge Management, Knowledge Transferring, Tacit Knowledge, Research Model, Asian centric philosophy*

### BACKGROUND

There is an emerging requirement to preserve indigenous knowledge (IK), as indigenous communities around the world face threats in the survival of their traditional languages and cultures. Further this knowledge has a huge scientific value which can be used for the development of humans in their day to day life. Much of this recent interest has been generated by the fact that Indigenous communities worldwide possess an unsurpassed knowledge of their physical environment and that it is therefore of crucial importance this knowledge be preserved and shared. Although there is an evident growth of the demand for indigenous knowledge, still organizations have a smaller amount of facility to gather and preserve this knowledge. According to Amanda Stevens (2008), Indigenous knowledge, however, differs greatly from Western knowledge (In here Amanda Stevens refers to the practice of explicit knowledge majorly based on positivism) and so it ***must be managed in unique and sensitive ways that may challenge conventional knowledge management tools and processes***, as well as prevalent assumptions about knowledge and information.

### AIMS AND OBJECTIVES OF THE STUDY

As stated above, the existing scientific approach and its paradigm/models have many issues related with the IKM. The intention of this paper is to suggest a complementary model for handling indigenous knowledge. The key objective of the study is to suggest a model which addresses the identified weaknesses of the existing IKM.

## METHODOLOGY

Since the research has an action oriented approach, the newly suggested model has been demonstrated on scientifically selected indigenous communities of Sri Lanka. The demonstration was based on 9 persons of 7 different villages around the country which interviewed by a team of undergraduate students throughout two months from June to July 2013.

### STATE OF KNOWLEDGE ON IKM

#### *Understanding IKM*

There are many sub tasks behind the terminology of IKM such as gathering, collecting, storing, accessing, transferring and conversion, etc. Yet for the comprehensiveness of research, all these actions are integrated in to three main tasks which depicts the entire process of IKM.

Identified three main tasks of IKM

- (1) Gather
- (2) Preserve
- (3) Transfer

However, Indigenous Knowledge is not confined to knowledge of the physical sciences. It is spiritual as well as ecological and embraces ways of knowing that are sometimes characterized as cultural or artistic. Viewing Indigenous Knowledge through categories such as art, science or culture, however, tends to fragment its inherent unity. As Greg Young-Ing describes it, the Traditional Knowledge of Indigenous peoples (Traditions; National gathering for IK 2005)

*"... encompasses a broad range of Indigenous knowledge ranging from: ancient stories, songs and dances; traditional architecture and agricultural; biodiversity related and medicinal, herbal and plant knowledge; ancient motifs, crests and other artistic designs; various artistic mediums, styles, forms and techniques; spiritual and religious institutions and their symbols; and various other forms of Indigenous knowledge."*  
(Heritage 2011)

#### *Existing models/tools/systems*

With the growing demand for IKM in knowledge generation, there is a necessity to develop many knowledge management systems / models / paradigms for this management process. The paper reviews three different existing models as the point of departure of the project which was carried out in different parts of the world.

#### *Smithsonian National Museum of the American Indian*

'Distributed Systems Technology CRC (DSTC) at the University of Queensland in Australia has designed an open-source software system for indigenous knowledge management (IKM) to manage the process of virtual repatriation of objects by the Smithsonian National Museum of the American Indian to their original owners'(Stevens 2008).

In this project, their key concern is to protect the intellectual property rights of the knowledge. Further they use ICT to preserve the gathered knowledge in order to provide access to the IK communities. But they do not suggest a proper guidance for the key action of gathering. It mainly focuses on the action of store and access. As discussed above, this tool does not provide an acceptable solution for the later key actions of preserving and transferring.

*Indigenous Knowledge Management System Using Mobile Device Video Capture and Web 2.0 Protocols by Prof. Alexander C. Flor (Philippine)*

This particular model/study attempted to answer the following research questions: How can mobile devices be used by rural communities to document indigenous knowledge? How can Web 2.0 protocols be employed in an indigenous knowledge management system? (Flor 2006). It has taken a different approach in the gathering process where it utilizes mobile video camera devices. Further they suggest web 2.0 as the main medium of storage. This approach of using mobile devices helps to preserve the tacit form of the practice which is hard to convert into the explicit documentation. But again this model does not cater to the very first obstacle of IKM which is awakening the knowledge from the communities. This occurs due to the unawareness of the community about their tacit form of knowledge. Further the project is only limited and oriented on managing agricultural practices.

#### *Northern Territory Library (Australia)*

This database allows the community to digitize objects that have been repatriated by museums and other institutions and record other cultural knowledge in audio, text, video, and photographic media to be accessed by the community or sold to universities and other researchers. Rights and responsibilities for Yolngu (the community) knowledge are divided between two different clans, and so the database was designed to reflect this (Steven 2008). One of the key constructive approaches of this model is adapting to the forms of society (the reflection of two clan diversity). Apart from this approach, the model further suggested and invented unique software called AraInigja for access with better regulations.

### **NEED FOR A COMPLIMENTARY METHOD FOR "IKM"**

As per the above models/tools, there are several identified main issues related to IKM and the existing methodologies used, which should provide proper solutions via the suggested new model. The identified main issues are as follows.

#### *The threat of time*

The critical state of IK is that communities and personalities associated with knowledge are under a treat of losing their identity and unique features due to globalization.

#### *Tacit knowledge*

Tacit knowledge is commonly referred to as the knowledge that is contained inside our heads and is therefore difficult to express. This knowledge should be experienced in first hand. Since written information has a permanence that does not reflect the true nature of Indigenous Knowledge (Traditions; National gathering for IK 2005) IK can be identified as a form of tacit knowledge. Therefore managing this form of knowledge remains a greater challenge in IKM.

#### *Attributes of Tacit Knowledge*

- Individual and often un-shared
- Being unaware of
- Time sensitive
- Expressible in action and difficult to express in words
- Un-scalable to Others
- Provides linkage

(What is Tacit Knowledge? 2008)

#### *The challenge of knowledge transferring*

Knowledge transfer (KT) is the practical process of transferring knowledge from one part of the organization to another. Like knowledge management, knowledge transfer seeks to organize, create, capture or distribute knowledge and ensure its availability for future users. It is considered to be more than just a communication process. Therefore KT models like Nonakas SECI model should be followed to generate a solution in IKM.

### *Limitations related to the Conventional practice of Western Scientific Method (WSM)*

Commonly the western scientific model is used in knowledge management as an effective model, and it is common with IK management too. But this western scientific model which mostly based on positivism has limitations with its structure. These limitations should be carefully analyzed and the scope should be identified to overcome issues relating to the conventional mode of knowledge management.

### *Limitations of WSM*

The extent of basic knowledge

The basis of Investigation

Our ability to interpret result

Limitation for accidental discoveries

Inability explain the existence of God super-natural powers and faith

Inability for appreciation of aesthetics

### *The philosophical contradiction*

The knowledge that is based on this communication model is a completely different form of knowledge to the western form of knowledge (main stream knowledge). It is deeply rooted to the Sri Lankan (Asian-centric) philosophy. The epistemological assumption for an Asian-centric paradigm is that everyone and everything becomes meaningful in relation to others. The foregoing ontological assumption naturally leads to this epistemological assumption. Indian philosophers teach us that since all things, events, phenomena, and beings are united to one another at a higher ontological level, they can be meaningfully understood only in relation to one another (Dissanayake, 1983a). In Chinese epistemology, likewise, genuine knowledge is believed to result from interaction and interrelation between the individual mind and the world. It is not an isolated phenomenon totally independent of individual life and society, nor is it a construction related merely to the basic functioning of the mind (Cheng, 1983) (Miike, 2002).

## **THE NEW MODEL**

The new development model, Model<sub>isi</sub> is based upon four main approaches in managing indigenous knowledge.

The four premises of the model

### *(1) A personally and contextually based gathering and preserving*

This approach suggests collecting information based upon personalities but not based upon subjects. As stated above, IK is deeply linked to people and the Asian philosophy believes knowledge to be an inter-related subjective phenomenon. Therefore the model gathers and preserves a personality instead of a subject like indigenous medicine or agriculture.

### *(2) Moving Image as the main medium*

The model recommends utilizing moving images as the main documentation medium instead of the conventional writing format. This approach helps to preserve the tacit quality of IK and also avoid the knowledge slip which occurs in writing.

Strengthens of video as a documentation medium

- Video can present visual information that is difficult to convey in other ways.
- It provides a sense of 'being there'.
- Allow viewers to 'travel' to different places and different time period, as well.
- Videos can be used to demonstrate specific manual skills or physical processes, either at normal speed, in slow motion, or speeded up to reveal relationships, principles, or practices.
- It has the power to elicit emotional responses.

- Crosses the language barrier to a certain extend.  
(Denning 2001)

*(3) Interacting process to gather*

Instead of interviewing these personalities via a third party (scholarly or any academic based party) the model creates the opportunity for them to interact with their peer communities. Recorded videos are re-projected to different communities and the reactions for videos are again recorded. This re-projecting and re-recording process is the major and unique approach of model\_isi to effectively gather and moderate IK.

*(4) Layered preservation*

The preservation of collected footages is done in a layered manner. The information collected from indigenous communities will be store in a main layer where a secondary layer (which consists of scholars) operates for the conversion of knowledge for contemporary usage).

**THE METHOD - The pilot experimentation of the model**

A demonstration has been carried-out to analyze the effect of the suggested model and its approaches. The demonstration was based on 9 personalities of 7 different villages around the country which interviewed by a group undergraduate students throughout two months from June to July 2013.



**Figure 17 Demonstration at Ritigala Village**

Source : by author

*Selected villages for the demonstration*

Seven different villages were focused on in the demonstration and these villages are from two main geographic zones of the country. There were little sub cultural links within the two areas which were deliberately selected to experiment the maximum effectiveness of the model the villages are as followed.

**Dry Zone Villages**

Keeriyagaswewa  
Galapitagala  
Kaluobe

**Wet Zone Villages**

Karamidula  
MandaramNuwara  
Kothmale  
Welampagoda

### *Interviewed personalities*

9 persons were interviewed during the time period of the demonstration. The group was consisted of different types of personalities from Sri Lankan indigenous communities. There were people who were awarded by the government for their contribution to folk art and traditional medicine. These names were taken from the database from the Sri Lankan folk music library. Also there were people who are typical adult villagers who were well known among the villagers for their maturity and knowledge.

### *Demonstration Team*

The demonstration team was consisted of 4 undergraduate students, who were intentionally selected from different disciplines to experiment the user friendliness of the model. These members were selected from diverse disciplines such as environmental studies, Art and Design and Engineering.

## DISCUSSION

### *Effect analysis of the model*

The demonstration trotted out many positive impacts and effects of the isi-model. As stated above, the demonstration took place with 9 different persons of 7 different villages. The demonstration indicates the following effective values of the model.

### *Overcoming the knowledge slip*

As mentioned above, the model mainly concerns of avoiding knowledge slip. Since the model uses an inter-reaction approach in knowledge awakening, the potential of knowledge slip is in a minimal level.

### *A simple story became knowledge*

Karunarathne from ritigala told a few stories of his past life. Among them there was a story of how he possessed knowledge from his father. While he was explaining his stories he sang many "kavi". These were just ignorable parts of his story. Yet Katakandure reacted to these videos and he responded to these "kavi". He explained those *kavi* and their designations (He explained it as "hath adiyakavi "). Then he sang some other versions of this *kavi*. Simply those "kavi" might be un-notable in a conventional model to a third party due to the way it placed in the karunarathnes story.

### *Easy to interview, awake hidden knowledge and make them more expressive*

Generally, interviewing such a senior citizen requires professional knowledge and a special practice in the related field. Yet this structure helps to over-come these issues and allows the teams to easily carry out their task. Specially seeing visuals of an old man performing stimulates the viewer to act instantly.

"Son! bring that ola leaves book on the shelf "

After describing his daily routine Katakandure ran out of words, then he asked "what else do you want know?". At the time being he mentioned he is commonly engages with traditional dancing and traditional medicine. But after projecting the footages of Karunarathne from ritigala, he mentioned his knowledge on astrology. After seeing the "nimithikulla" ritual he asked his son to bring a "ola leaves book" from the shelf and then he started to conduct a different version of

"nimithi ritual" that is unique to the upcountry. The astrology knowledge of this person might have been missed in a conventional manner but not in this isi-model.

*Helps to create complete and comprehensive knowledge*

One of the important effects of the model is that it helps to gather complete and comprehensive knowledge deposited among the senior citizens of folk communities.

A series of poems by two different villages

Dissanayake from Kothmale narrated a folk story during his interview and then he sang a "kariya" (a type of poem). At that time the story looked like a complete one, but the poem was un-completed. This story was re-projected to Heenbanda from Mandaramnuwara. Then he narrated the complete series of stories related to that previous story. Further he sang 4 sets of inter-linked "kari".



Figure 28 Demonstration at Keeriyagaswewa  
Source : by Author

*Awakening alternative version of practicing*

In the case mentioned under overcoming the knowledge slip, Karakandure explained of an alternative version of practice after viewing the "Hathadiya" of Karunarathne. Further he sang all of the kari related to that ritual. This provided the opportunity of gathering and preserving many linked alternative practices.

"I am an astrologer ... so I know things about it"

At the interview held in Kothmale, Heenbanda introduced himself as a traditional farmer. Yet during the re-projection session, the previous videos from the others stimulated him to state about his knowledge in astrology which has not been used from a long time. Further he explained astrology-based agricultural practices after seeing videos of Mr. Ranbanda from Galapitagala.

### *Awakening completely new subject streams*

Providing further alternatives and links is one advantage of the model as stated above. Since tacit knowledge is an outstanding and eccentric human psychological phenomenon, it is difficult to predict how it will provide linkages to knowledge. Therefore, this isi-model has the potential of awakening completely new subject topics during the interviews and re-projections.

#### From agriculture practice to a language

Abeyasiri from Ritigala explains some of traditional agricultural practices which he was engaged in his youth. These descriptions were consisted of many diverse practices. After viewing these footages, Katakandure started to explain about a provincial language and its idioms instead of giving knowledge linkages to agricultural practices. This is an ideal proof that tacit knowledge cannot be scaled or predicted to a third party. These discover of new subjects is rare in the conventional linear practice.

### *Understanding and evaluating the potentials of the model*

Apart from the above proven effects of the model, there are many potential strong suits of the model which can be identified by the further analysis. As mentioned under the "Need for a complimentary method for "IKM", This particular subject area directly associate with deeper parts of the human psychology. Generally people from typical indigenous communities have a stereo type impression on the researchers/outsideers come to interview them, which ultimately guide them to purposely hold their knowledge. In other hand as explained in under the traits of tacit knowledge, they do not have an accurate sense to answer and react to the needs of IKM. Almost every time they start their conversation like "I don't know what to tell sir". But all of these blockades can be meritoriously over come through the re-projecting approach of the model.

One of the main and unique features of the model is that it has the *self-growing potential* without a major involvement/moderation of senior scholars. With this features the model can promptly cover and gather a larger area of IK possess by the communities. When it comes to the researching IK, The scholars/research team needs a thorough knowledge on diverse subjects as well as the sense on the particular society. Even a specialized scholar on particular subject stream might miss many other related clues on IK since IK does not exist in the subject/stream form. Yet with the approaches taken by the model allows to an average person to participate in the process. Diverse undergraduate students were participated during the experiment who are not directly linked/study the indigenous knowledge. According to the two students from IT and art stream, they did not face any difficulties while participating and carrying out the interviews. This particular approach further gives access to appoint a large number of people on IKM projects which generally limited and currently carrying out by high professional senior scholars.

As mentioned under the philosophical background of the IK, It is intensely attached to person and his/her context who possess it. Therefore the model adapted this feature and respond to it by gathering and preserving IK in personally and contextual based manner instead of conventional subject based approach. This approach supplementary address the intellectual property rights of IK.

### *Identifying Insustantialities of the model*

Some portion of the IK must unquestionably experience in first hand. Any third party involvement will not be able to provide an effective and accurate experience. As an example an application of an ointment or medicine by a traditional doctor (his finger pressure, unique movements) cannot be capture with the limitations of the model nor even the conventional approach. Further this model has a drawback when it comes to managing community based



group knowledge. But again this issue can be addressed at the preserve point by storing the knowledge as a collective set of individual experiences.

## CONCLUSION AND FURTHER STUDIES

The model\_isi is a complementary approach to the existing scientific method of IKM research paradigms. Prior to the conclusion, the analysis of the model and its effectiveness can be stated as follow. The existing practices in IKM have many issues as stated in the beginning of the paper. Especially, the act of preservation should take place within the process since IKM is under the threat of extinction. Further the rest of the actions in the process (gather, transfer) as well as the action of preservation should happen as per the factual traits and paradigms of the IK. The model is proven to have the capability of providing a better solution for identified issues related with IKM.

The model demonstrated mainly the first three phases of the approaches which were basically oriented on gathering, preserving and initial peer moderation. The 4th approach (the layered network and the knowledge moderation of scholars from mainstream) should be further analyzed and elaborated to understand its effectiveness in knowledge transferring by allowing main stream scholars to involve in the secondary knowledge moderation.

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<sup>1</sup>Nonaka's SECI (Socialisation, Externalization, Combination, Internalisation) model is a widely accepted paradigmatic status related to knowledge transferring (Gourlay, 2006). This framework captures the dynamic character of knowledge and is based on sharing of subjectivity (Richter).