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Research paper

Combining the Methodologies of Ethnography and Grounded Theory Approach in Understanding the Characteristics of Traditional Knowledge Related to Medicinal Plants of the Batek in Kuala Koh,Gua Musang, Kelantan

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Abstract

Traditional knowledge related to medicinal plants of the indigenous people is a valuable asset to the community and could potentially bring economic returns to them if it is utilized appropriately. While much of the existing researches have been focused on documenting the knowledge, not much however, has been made known on the 'holistic' practice of the knowledge at the community level particularly in the Malaysian context. This is an important aspect as documenting the knowledge alone would not bring any meaning if the knowledge itself is not sustainably practiced by the communities who hold the knowledge. However, it is not an easy task to understand the management aspect of the knowledge especially if the researcher comes from a 'different world view' that the indigenous people themselves. This study is an attempt to combine two methodologies namely ethnographic approach as data gathering method and the principles of grounded theory approach as data analysis in understanding how the traditional knowledge related to medicinal plants is being protected by the indigenous people. Using the Orang Asli Batek in Kuala Koh, Gua Musang, Kelantan as a case study, this research involved multiple prolonged stays with the community (2013-2016) and employed ethnographic techniques of individual and group interviews, observation and participant observation as well as document analysis to gather the data. The collected data was analysed using the principles of grounded theory where all responses that were recorded in verbatim was organised and analysed in stages of coding such as 'initial coding', 'selective coding' and 'theme' which upon further analysis, had enabled the description of the characteristics of the traditional knowledge related to medicinal plants of the Bateks. The result of this study found that the combination of the two methodologies are indeed useful and in fact are complementary with each other in understanding the characteristics of the traditional knowledge related to medicinal plants of the Bateks of Kuala Koh as part of the indigenous community in the country. In particular, employing the two methods has enabled the study to identify the characteristics (forms) of the TK that can be found in an indigenous community such as the Bateks of Kuala Koh. This research has provided a greater understanding on the existing state of protecting the TK being practiced by the Bateks. The study also provides useful contribution to the body of knowledge as the methodological approach used could be employed by future researches in understanding similar approach in understanding similar phenomena.

Keywords: *Bateks; Ethnography; Grounded Theory; Medicinal Plants; Traditional Knowledge*

1. Introduction

Traditional knowledge (TK) especially the TK on medicinal plants owned by the indigenous people is a very useful asset to the community. However, over the years, evidences have shown that TK of this community has gradually been eroded (1, 2) and in many cases were misappropriated by parties outside of this community (3, 4) and thus needs to be protected accordingly. In the Malaysian context, most studies on the TK owned by the indigenous community particularly the TK related to medicinal plants were mainly concentrated in the documentation of the TK (5). Very few studies, if any, were focusing on how the TK is being practiced and protected by this community, which is also a very important element in ensuring the sustainability of the knowledge. This paper is an attempt to discuss the relevancy, appropriateness and potential of combining two methodologies namely ethnographic methods and grounded theory approach in providing observation and interpretation about the management of traditional knowledge related to medicinal plants of indigenous people. Specifically, it provides a discussion on the use of ethnographic method as a data gathering approach and its suitability to be complimented with grounded theory approach for data analysis in understanding issues of indigenous communities. Using the Batek community in Kuala Koh,

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Gua Musang Kelantan as a case study, this qualitative research involved 3 years of multiple prolonged stays (2013-2016) with the Bateks community to understand how the knowledge related to medicinal plants are being practiced, protected and managed by the community. Ethnographic methods of individual and group interviews, observations and participants observation as well as document analysis have been employed to gather the relevant data and the principles of grounded theory were used to analyse the data in order to enable the development of the substantive theory and finally the formal theory that provides explanation on the phenomena at the study site. The combined methodologies are then used to develop and explain the characteristics of the traditional knowledge related to medicinal plants of the Bateks.

2. The Bateks

The indigenous people or Orang Asli in Peninsular Malaysia are grouped into 3 namely the Proto-Malays, Senoi and Negritos which is divided into 18 sub-ethnics. The Bateks is one of these 18 sub-ethnics and is grouped into the Negrito Orang Asli. They are among the smallest sub-ethnics as reflected in the census conducted by the Department of Statistics (DOS). According to DOS, in 2011, out of more than 178,000 Orang Asli in Peninsular Malaysia, only 5,009 or 2.81% are the Negritos and out of this, only 1,447 are the Bateks. Further, out of these 1,447 Bateks, only 504 are inhabiting the areas in the state of Kelantan, the state where this study was conducted. The distribution of the Orang Asli in Peninsular Malaysia by ethnics groups and states and the detail distribution of the Negitos and the Bateks are detailed out in Tables 1 and 2 below:

Table 1: The Distribution of Orang Asli by Ethnics Groups and States (2011)

State	Negritos	Senoi	Proto-Malays	Total
Kedah	251	19	-	270
Perak	2,413	50,281	605	53,299
Kelantan	1,381	12,047	29	13,457
Terengganu	34	818	41	893
Pahang	925	29,439	37,142	67,506
Selangor	3	5,073	12,511	17,587
Negeri Sembilan	-	96	10,435	10,531
Melaka	1	28	1,486	1,515
Johor	1	55	13,083	13,139
Total	**5,009**	**97,856**	**75,332**	**178,197**
Percentage (%)	2.81	54.91	42.27	100

Source: Department of Statistics, Malaysia, 2011

Table 2: The distribution of the sub-ethnics under the negrito group and by states (2011)

State	Kintak	Kensiu	Jahai	Mendrik	Batek	Lanoh	Total
Johor	-	-	1	-	-	-	1
Kedah	208	30	3	-	-	10	251
Kelantan	-	1	530	344	504	2	1,381
Melaka	1	-	-	-	-	-	1
Negeri Sembilan	-	-	-	-	-	-	-
Pahang	-	-	15	3	906	1	925
Perak	28	163	1,838	12	3	369	2,413
Selangor	-	-	-	3	-	-	3
Terengganu	-	-	-	-	34	-	34
Total	**237**	**194**	**2,387**	**362**	**1,447**	**382**	**5,009**

Source: Department of Statistics of Malaysia, 2011

In essence, as reflected in Table 2 above, according to the above figures from the DOS, the Bateks' population in Peninsular Malaysia is rather small. However, although the Bateks, as part of the indigenous people of the world, only made up a small proportion of the global population, they do play an important role in maintaining and managing the planet's land particularly the forests and the eco-system. According to Galloway McLean (6), despite its small population compared to the rest of the communities of the world, the indigenous people is important as they manage 11% of the world's forest lands and customarily own, occupy or use 22% of the world's land surface maintain an overwhelming 80% of the planet's biodiversity and are located in or adjacent to 85% of the world's protected areas. This interdependence between the indigenous people and the forest land and its eco-system has enabled the former to gain and develop knowledge on the uses of the natural resources to their advantage. This knowledge that they had traditionally inherited from their ancestors for many generations has benefited the indigenous people in many ways and continue to survive over time. However, many external and internal forces continues to erode the existence of this valuable asset, which may cause it to loose from human's system forever.

3. Traditional Knowledge

There are various definitions of traditional knowledge being mentioned and discussed in the literatures. Traditional knowledge (TK), Indigenous Knowledge (IK), Traditional Environmental Knowledge (TEK) and local knowledge which is often used interchangeably, is generally referred to knowledge systems embedded in the cultural traditions of regional, indigenous or local communities. According to Berkes, Folke, & Gadgil (7) indigenous knowledge is broadly defined as local knowledge held by indigenous people or local knowledge unique to a given culture or society and is often used interchangeably with traditional knowledge (7). Specifically, according to Berkes et al.(7), traditional ecological knowledge (TEK) is the subset of indigenous knowledge. Indigenous knowledge or traditional knowledge is defined as a cumulative body of knowledge and beliefs handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with the environment (8) cited in (7).

Meanwhile, according to the International Council for Science (ICSU) Study Group on Sciences and Traditional Knowledge (2002), traditional knowledge has been defined as 'a cumulative body of knowledge, know-how, practices and representations maintained and developed by people with extended histories of interaction with the natural environment. Meanwhile, World Intellectual Property Organisation (WIPO) defined TK as:

...knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity' (WIPO, 2016)...

In short, traditional knowledge is essentially the know-how, practices or the knowledge owned by a particular community which they had inherited from their previous generations. In the context of this study, traditional knowledge refers to the existing knowledge related to medicinal plants that is owned by and passed on among the members of the Batek of Kuala Koh from generation to generation.

4. The Study

This purpose of this study is to discuss and 'put to test' the relevancy of using ethnographic methods of data gathering and grounded theory approach as data analysis in understanding the management of traditional knowledge related to medicinal plants

owned by Batek community of Kuala Koh, Gua Musang, in Kelantan, Malaysia. As described earlier, this community which can be found mostly in the Northeastern part of Peninsular Malaysia (Pahang, Kelantan and Terengganu), is among the smallest sub-ethnics of Orang Asli in Peninsular Malaysia (9-11). The Bateks of Kuala Koh stayed in a deeper part of forested areas in Gua Musang District (approximately 77km from Gua Musang city) and the group, like the other groups of Bateks in Pasir Lenggi and Felda Aring in Gua Musang district, is still demonstrating the uses of medicinal plants for healing rituals in their daily lives, and hence has easily become the subject of choice for the study.

In this study, the use of ethnographic methods to collect data and the utilization of principles of grounded theory to analyse them was 'put to test' in describing the management of the traditional knowledge of the Orang Asli Batek and eventually developing an understanding about the characteristics of their traditional knowledge to medicinal plants. In the Malaysian context, there have been many studies in the literatures on the traditional knowledge of the Orang Asli particularly on the documentation of their traditional knowledge (12-14). Due to the nature of the enquiry of the studies which were generally focusing on documenting the knowledge, most of them however, were carried out either through undertaking strictly ethnographic approaches for data gathering and analysis, or through interviews, or observation or dissemination of qualitative/quantitative surveys or questionnaires on the respondents to understand the phenomena on the ground. The studies by Ahmad (15) for example, were mostly aimed at gathering and recording medicinal plants used by the indigenous communities in Sarawak and Sabah respectively in healing ailments faced by members of the communities.

In addition, a 'plethora' of other researches have been embarked to look at similar topic of inventorising and documenting the traditional knowledge related to medicinal plants of both the indigenous people and local communities in Peninsular Malaysia. These include researches by Das et. al (16) who found that more than 100 species of traditional herbal medicine were used by the locals in the region of Kampong Buloh Nipis, Terengganu while Abdullah & Rusea (17) had successfully documented the use of 13 or 14 species of wild edible fungi belonging to 9 pletora known to Malay population including several populations in East Malaysia. Other researchers who also undertook the documentation of traditional knowledge related to medicinal plants in Malaysia include Chai et. al (2008) who have recorded 77 species of medicinal plants used by the Penan to solve their health problems whenever need arises. There have been various other researches undertaken by both academicians and other researchers on traditional knowledge of medicinal plants of the indigenous people but unfortunately, very few studies, if any, were undertaken to understand the 'holistic' nature of the traditional knowledge, particularly in understanding whole processes of knowledge management namely how the knowledge is being generated, codified, utilized and transferred at the community level. Let alone, studies that employ a combination of two different methodologies to understand this. This study therefore, provides an opportunity to unlock the potential of combining the ethnographic methods of data gathering and grounded theory approach for data analysis in understanding how the traditional knowledge is being managed at the Batek community in Kuala Koh, Gua Musang.

5. The Utilization and Practice of Traditional Knowledge by the Bateks

In order to understand the characteristics of the traditional knowledge of the Bateks, it is imperative to understand how the knowledge is being utilized and practiced by the community. This would enable an understanding and description on how the community 'manage' their knowledge. Knowledge management can be defined through many perspectives in the literatures (18, 19). In the context of this study, the main 'concept' of how knowledge is being utilized and practiced refers to the description of knowledge management processes that has been put forward by (20). Alavi & Leidner (20) described that the four processes of management of knowledge are i) knowledge creation (generation); ii) knowledge storage and retrieval (codification); iii) knowledge transfer and iv) knowledge application (utilization). In this study, based on the data obtained from the interviews with members of the Batek community and observation on how the knowledge is being practiced and managed at the study site, the researchers have sought data to describe 'what happened' to the knowledge of the community during all four processes which eventually result in the identification of the characteristics (forms) of the TK.

6. Ethnography as a Research Methodology

Ethnography as Walters (21) summed up:

…is not just another method, for capturing or massaging data. Like other methods in the social and behavioral sciences, ethnography is an analytical description of the behaviors that characterise and distinguish cultures and sociological groups. But unlike other approaches, ethnography goes beyond mere 'objective analytical description' to include description and analysis of the knowledge and beliefs that generate and interpret those behaviors. p. 33.

In essence, most significantly, Walters (21) pointed out that the major emphasis of ethnography unlike many other research methods is the 'width, depth and thickness of data and analysis' that one has to be able to generate through this method to carry undertake to understand a particular phenomenon. This is very much in line with the approach undertaken in this study whereby this qualitative study incorporates ethnographic research instruments as data collection methods which involved multiple prolonged stays with the Orang Asli Bateks community in the period of 2013-2016. In going 'beyond mere objective analytical description', the ethnographic activities in this study has also included the description and analysis of the knowledge and beliefs that generate and interpret those behaviors' by engaging in various daily activities of the community including observing and participating in their trips into the forest in obtaining medicinal plants, communicating and engaging with the younger generations in understanding their education pursuits to name a few. In addition, series of individual and group interviews with the relevant members of the community were also carried out to gather the relevant data and this was further 'triangulated' with constant reference on existing literatures about the traditional knowledge of the indigenous people.

7. Grounded Theory as a Research Methodology

Unlike most quantitative researches which generally adopt or generate a theoretical framework with which to analyse and interpret a certain phenomenon (22), grounded theory approach allows an understanding of the phenomenon to emerge through data analysis and 'a literature search that is performed mainly after data have been collected (Johnson, 1990 cited in Pettigrew (22)). Essentially, as (23) pointed out, the grounded theory method was developed by Glaser & Strauss (24) to 'redress' the emphasis on the verification of existing theories by allowing the construction of a methodology that could qualitative researchers through the theory development process. As the aim of the grounded theory is to produce interpretations that can explain social phenomena, this methodology enables the identification of the main concerns of social actors, together with the various strategies that can be utilised to address these concerns (25). Essentially, this emphasis is mostly similar to and in compatible with the 'types' of data that can be gathered using ethnography approach. Thus, in this study, the data that has been collected using ethnographic methods was analysed using the principles of grounded theory where all responses that were recorded in verbatim was organised and analysed in stages of coding such as 'initial coding' and 'selective coding', which upon further analysis, had enabled the emergence of 'substantial theory' and finally the identification of a 'formal theory' that is then used to

explain the phenomena of traditional knowledge management in the indigenous community being studied.

8. Ethnography and Grounded Theory Combined

The use of ethnography as a qualitative data gathering method in studying indigenous people is well documented. From its early discovery, ethnography has been to seek understanding of a phenomenon on indigenous people and marginalised communities. So too is the use of grounded theory. A study by Makokis (26) has enabled the author to identify the beliefs and values of the teachings from Cree elderly and how the values, beliefs and stories of the informants were utilised to change the 'neo-colonial attitudes' and then assist the Cree to reshape their self-governance system using grounded theory methodology. In addition, in the Malaysian context, a study by Low, Tong, & Low (27) on the selection of treatment strategies among patients with type 2 diabetes mellitus in Malaysia using a grounded theory approach has enabled the authors to generate a theoretical model that describes the strategy selection process that the authors believed to 'have a broad based applicability to other diseases'.

Meanwhile, the grounded theory, according to B. G. Glaser (28), is applicable to data 'from which it is generated'. While Glasser together with his colleague, Anselm in their writing 'Awareness of Dying' in 1965, saw clearly the 'general implications of awareness context theory for application', grounded theory also applies with 'fit' and 'relevance' to similar areas of concern. In this regard, B. G. Glaser (28) further added that the application of a grounded theory is based on conceptual fit and relevance and 'even if' the area is different (from that of medical concern). Thus, although grounded theory was initially discovered and used to come up with a theory that can explain from a medical perspective, as this study is going to show, the use of grounded theory is also 'relevant' and 'fit' with the data obtained from ethnographic method (interviews and observation) in a sense that they both are looking for 'realities' or 'phenomenon' that are happening on the 'ground' at the study site.

B. G. Glaser (28) further explains, these fits to many types, and areas, and data 'occur almost automatically and conceptually irrespective of that data from which they were generated'. He further added that 'their conceptual grab and their use is 'non-stoppable' and 'occurs informally' and 'casually' more often than formally and thus grounded theory applications were done 'naturally' in many ways. B. G. Glaser (28) articulated that grounded theory methodology is based on coding 'what we do naturally', that is 'comparing incidents in our lives to see 'patterns' in everyday life. On this, Glasser further adds that 'when applying grounded theory to fit and be relevant to another area of concern, 'constant comparative analysis' was used to 'apply' and/or 'generate' more theory through application.

Although many literatures have often highlighted the separate use of ethnography and grounded theory methodologies in studying a phenomena and that it is 'unusual' to see these two are combined, a study by Bamkin, et al.(29) (2016) on assessing the importance of libraries to demonstrate their value to children's literacy had successfully combined both ethnography and grounded theory as a methodology to answer a research inquiry. This study in particular had combined these two methodologies to study children's visiting children's mobile libraries (CMLs). The study has succeeded to provide verifications on the benefits of the 'combined methodology of grounded theory and ethnography' as the ethnographic elements allowed the researcher to 'enter into the children's world' while the grounded theory elements provided a 'structural framework', exploration into a novel research topic and ensured that a valid conclusion was drawn.

In addition, the use of combined methodologies for research inquiry was further supported by another study undertaken by Hall (30) who has introduced a dual-level capabilities approach to development. In this study, the author has improved upon individual-focused capabilities approaches developed by Amartya Sen and Martha Nuusbaum whereby a seven-months of 'ethnographic works' in the Afro-descendant, autochthonous Garifuna community of Honduras has been combined with a constructive grounded theory methodology to develop a dual-level capabilities approach, inclusive of collective and individual capabilities. In addition, the potential compatibility of combining ethnography and grounded theory was also emphasised by Pettigrew (22) who discusses the compatibility of ethnography with the grounded theory method of theory induction as employed in sociology. In this study, he has proposed that when combined, these two methods have the potential to offer a detailed understanding of consumption as experienced by consumers in consumer research. Thus, with the aim of this study to understand the 'culture' of an indigenous community, the use of ethnography which has been widely employed since researchers began their effort to study on indigenous communities (Malinowski cited in (31) 1986) can be combined it 'fits' relevantly with grounded theory approach due to their similar natural characteristics of types data (thickness, depth and width), being gathered and analysed. This is further supported by Pettigrew (22) in his study:

Grounded theory and ethnography are suggested (here) to be highly compatible, as ethnographic studies can provide the thick description that is very useful data for grounded theory analysis (24). Part of this compatibility derives from the similarities in the characteristics between the two methods. As a naturalistic form of inquiry, ethnography entails observing and analysing behaviour in naturally occurring conditions (32, 33). Grounded theory similarly performs best with data generated in natural settings (34). Both have been derived from the symbolic interactionist perspective (34-36), and both often rely on participant observations (37, 38). Sample selection is emergent in both ethnography and grounded theory (33, 38), and both attempt to obtain emic descriptions of behaviour (39)...

In essence, it is easy to concur with the opinions of Pettigrew (22) in that both ethnography and grounded theory are methods that are 'compatible' with each other to be used and in fact can be 'complementary' between one another as 'it can be found that they have very much similarities' in their orientation especially in terms of data gathering for analysis. While ethnography involves 'observing and analysing behaviour in naturally occurring conditions' ((32, 33) cited in Pettigrew (22)), grounded theory works 'best with data generated in natural settings' ((34) cited in Pettigrew (22)). In addition, as Barnes (39) cited in Pettigrew (22) observed similarities between both methods in terms of sample selection and the focus on acquiring 'emic' description of behaviour.

In short, these literatures have provided supports and evidences as well as explanation on the compatible use of a 'combined methodologies of ethnography and grounded theory' to be employed in a research enquiry. As the use of ethnography has been extensively used to study an indigenous community since the early 'discovery' of their culture (Malinowski cited in (31) 1986), the use of grounded theory which seeks 'data that is generated in natural settings' further 'complement' the former method. The arguments put forward earlier therefore has provided a clear justification for the relevancy and appropriateness of using a 'combined ethnographic and grounded theory methodologies' in understanding the phenomena about the management and practice of traditional knowledge related to medicinal plants of the Bateks in Kuala Koh, Gua Musang Kelantan. The following is the outcome of the study which provide evidences on the compatible use of ethnographic methods for data gathering and grounded theory approach as data analysis. Specifically, based on the enquiry on 'what happened' throughout the 4 processes of knowledge management namely knowledge creation, knowledge storage and retrieve (codification), knowledge transfer and knowledge application, characteristics of the traditional knowledge related to medicinal plants of Bateks in Kuala Koh, Gua Musang has been identified and interpreted accordingly.

9. Findings

The following table summarises the findings of this study whereby the data that was collected from ethnographic methods (individual and group interviews and observations as well as participant observation) has been analysed using the principles of grounded theory (initial coding, selective coding, themes etc.) in order to identify the forms or characteristics of the traditional knowledge related to medicinal plants at the study site.

Table 3: The Mapping of Data from Codings, Sub-Themes, Themes Based on The Examination of The Processes of Knowledge Management of The Bateks in Kuala Koh and The Forms (Characteristics) of The Traditional Knowledge Related to Medicinal Plants That Can Be Found at The Bateks Community of Kuala Koh, Gua Musang

No.	Brief Explanation of IGC on IPGRTKF on forms of TK to be Found	Data from Codings and Sub-Themes of Examination on Processes of Knowledge Management of the Bateks in Kuala Koh	Analysis	Forms of TK Related to Medicinal Plants Found in Batek
i.	Fixed/Non-Fixed *Is TK recorded in some sufficiently stable material or tangible form?*	Oral knowledge transfer Absence of recording or documentation of knowledge by members Documentation may be done by outsiders	Data showed that it may not be feasible for TK to be in fixed form as there was no evidence to suggest TK was recorded in any sufficiently stable material or tangible form	**Non-Fixed** (TK is not recorded in any sufficiently stable material or tangible form)
ii.	Documented/Non-Documented *Is TK recorded, for purposes of furnishing evidence which can take many forms, such as text, video, audio, etc., or a combination thereof*	No documentation of TK Absence of recording or documentation of knowledge by members Documentation may be done by outsiders	Data showed that it may not be feasible for TK to be in documented form as there was no evidence to suggest that that TK has been documented	**Non-Documented** (TK is not recorded for the purpose of furnishing evidence which can take many forms, such as text, video,e tc or a combination thereof)
iii.	Codified/Non-Codified *Is TK recorded in some systematic and structured form, in which the knowledge is ordered, organized, classified and categorized in some manner?*	This form of TK is related to the previous forms of TK – whether there is a fixed and documented TK. This is because in order for TK to be recorded in some systematic and structured form, there needs to be some forms of recording and documenting of the TK prior to that. Since there is no recording and documenting of TK taking place in the community, it is not possible for the TK to be recorded in some systematic and structured form.	The absence of any fixed or documented TK support the notion TK is not recorded in any systematic and structured form as it may not be possible for the TK to be codified without the present of fix and documented TK	**Non-Codified** (TK is not recorded in some systematic and structured form, in which the knowledge is ordered, organized, classified and categorised in some manner)
iv.	Disclosed/Non- Disclosed *Is TK accessible to persons beyond the indigenous or local community which is regarded as the "holder" of the TK?*	TK may be documented and codified by outsiders Business transactions of medicinal plants	Data from the codings and sub-themes showed that TK may have been accessible to persons beyond the indigenous community which is regarded as the 'non-holder' of the TK. This may be ascertained by future research.	**Some TK might possibly be disclosed** (There were some evidences to suggest that some of the TK may have been disclosed but some others may have not)
v.	TK Directly Controlled by Indigenous Community/TK Not Directly Controlled by Indigenous Community *Is TK still being controlled exclusively by Indigenous and Local Communities (ILCs)?*	This form of TK is related to whether TK was disclosed to outsiders. This is because, since there could have been some disclosure of TK beyond the indigenous community, there may be potential for some of the TK to be 'exposed' to outsider ad thus may no longer be 'directly controlled' by the community anymore.	This is related to whether TK was disclosed to outsiders. If disclosure of TK did happen, there may be utilisation of the TK by the third party which could lead to TK to not be directly controlled by the community any longer. This may be ascertained by future research.	**Some TK might not be directly controlled** (Part of the TK may possibly be no longer in direct control by the indigenous community)
vi.	Sacred/Secular Knowledge *Is there any expression of TK that symbolizes or pertains to religious and spiritual beliefs, practices or customs?*	Transfers of knowledge through ideas obtained from dreams Familial lineage in knowledge acquiring Teaching from earlier generation It was also observed that TK has not incorporated any secular elements	Data shows that there are some expression of TK that symbolizes or pertains to religious and spiritual beliefs, practices and customs.	**Sacred knowledge** (There was expression of TK that symbolises or pertains to religious and spiritual beliefs, practices or customs)
vii.	TK as such/TK-based Innovation and Creations *Have knowledge systems, creations and innovations generally been transmitted from generation to generation?*	Transfer of knowledge through 'ideas obtained from dreams' Teaching from earlier generation Trust in certain individuals in community Knowledge sharing among members of the community Knowledge acquired by younger generation by learning from the elderly	Data showed that the systems, creations and innovations of the Bateks have generally been transmitted from generation to generation	**TK as such** (There were evidences to suggest that knowledge systems, creations and innovations have generally been transmitted from generation to generation)
viii.	Indigenous/ Traditional Knowledge *Is knowledge held and used by communities, people*	This may not be feasible to analyse based on any of the codings or sub-themes. Thus, the review of document analysis was used. **Document analysis**	Written document provides evidences that showed that TK is held and used by the Batek community who are clas-	**Indigenous knowledge** (Documented evidence suggest that Batek is an indigenous people in Malaysia. Therefore, held and

No.	Brief Explanation of IGC on IPGRTKF on forms of TK to be Found	Data from Codings and Sub-Themes of Examination on Processes of Knowledge Management of the Bateks in Kuala Koh	Analysis	Forms of TK Related to Medicinal Plants Found in Batek
	and nations that are 'indigenous'	The Batek is one of the 18 sub-ethnics of the *Orang Asli* that is classified as aboriginal (indigenous) people under the Aboriginal Peoples Act of Malaysia (Act 134). Therefore, their traditional knowledge is considered indigenous knowledge.	sified as an indigenous group of people under the Malaysia Law.	used by this community is 'indigenous'
ix.	Collective/ Individual Knowledge *Is TK developed collectively and/or regarded as belonged collectively to an indigenous or local community or to groups of individuals within such a community?*	Familial 'lineage' in knowledge acquiring Knowledge acquired by younger generation by learning from the elderly Knowledge sharing among community members	Data showed that TK is collectively held by the sharing of the knowledge intra and inter-generation.	**Collective knowledge** (Evidences suggested that TK is developed collectively and/or regarded as belonged collectively to the indigenous community rather than to groups of individuals within the community
x.	Commercialised/ Non-commercialised knowledge *Is there exchange of goods and services from the point of production to the point of consumption?*	Business transactions of medicinal plants Fulfilling requests from outsiders (obtaining of medicinal plants from forests)	Data showed evidences that there are exchanges of goods or services.	**Commercialised knowledge** (Some) Evidences suggested that there were some exchanges of goods and services from the point of production to the point of consumption

Source: Fieldworks at the Bateks of Kuala Koh, Gua Musang, Kelantan, Malaysia, 2013-2016 and adapted from the Intergovernmental Committee (IGC) on Intellectual Property and Genetic Resources Traditional Knowledge and Folklore (IPGRTKF), 2010

In essence, the finding of this study was based on the works undertaken by this research team following an enquiry raised by the meeting members at the 17th Session of Intergovernmental Committee (IGC) on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (2010) (referred to as 17th IGC on IPGRTKF from now onwards), where discussions were held and the meeting agreed on the importance of 'identifying' the 'various forms' in which traditional knowledge may be found. This information, according to 17th IGC on IPGRTKF (2010) is vital because as mentioned by a delegation member of the Session that 'traditional knowledge had different meaning for different people in different fora'. Therefore, an analysis of categories of the different manifestations of traditional knowledge is important as 'such categorization would respond to the different ways in which such traditional knowledge was maintained and transmitted, publicly available or publicly accessible, under the direct control of the indigenous and local communities or not, already in the public domain but not previously commercialized, among other issues (WIPO Homepage, 2016). The statement by the 17th IGC on IPGRTKF (2010) further mentioned that 'each of those categories might require a different consideration in the kind of protection it should receive which in turn could assist countries to decide accordingly on what kind of protection to be given on TK and how the protection mechanism can be carried out'.

The Secretariat of the 17th IGC on IPGRTKF has also provided the definitions and brief explanation on the forms of TK that can be found whereby 10 forms of TK that can be found had been described namely whether the knowledge is i) fixed or non-fixed; ii) documented or non-documented; iii) codified or non-codified; iv) disclosed or non-disclosed; v) TK directly controlled by indigenous community or TK not directly controlled by indigenous community; vi) TK as such/TK-based Innovation and Creations; vii) Sacred or Secular Knowledge; viii) indigenous or traditional knowledge; ix) collective or individual knowledge and x) commercialized or non-commercialised knowledge. (The brief explanation of the forms of the TK appears in Table 3 above).

Based on the lack of or rather the absence of the data on the forms of TK that can be found in the Malaysian context, this research has undertaken ethnographic methods of data gathering by asking 'what happened' or 'what can be described to happen' during all 4 processes of knowledge management (knowledge creation/generation, storage and retrieve (codification), transfer and application (utilization) as communicated by the Bateks of Kuala Koh. The answers to the question was then analysed using the principles of grounded theory (open coding and selective coding etc) which allowed for certain themes to emerge and map these themes up with the definition and brief explanation on the forms of the TK that can be found at the study site (as can be seen from Table 3 above).

This data analysis process has enabled the emergence of the characteristics of the traditional knowledge related to medicinal plants of the Bateks in Kuala Koh based on the forms of the traditional knowledge related to medicinal plants that can be found at the study site. In summary, the characteristics of the traditional knowledge found at the study site are traditional knowledge that is non-fixed, non-documented, non-codified, sacred, disclosed, TK not directly controlled by indigenous community; TK as such, sacred knowledge; indigenous knowledge; collectively held knowledge and commercialized knowledge. Consequently, Figure 1 below further illustrates the low possibility of the traditional knowledge to be protected under the existing protection mechanism under the World Intellectual Property Organisation (WIPO) due to its 'unconducive forms' to be protected.

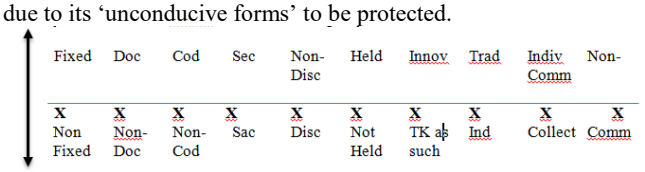


Fig. 1: The Possibility of Protection Under World Intellectual Property Organisation (WIPO) Protection Mechanism Based on The Data on The Forms of TK on Medicinal Plants That Can Be Found at The Batek of Kuala Koh, Gua Musang, Kelantan.

Higher Possibility for Protection Under Intellectual Property (IP) Protection Mechanism (WIPO)

Lower Possibility for Protection Under Intellectual Property (IP) Protection Mechanism (WIPO)

Source: Fieldworks and adapted from the Forms of TK and Brief Explanation Compiled by the Secretariat of the said IGC

10. Discussion and Analysis

In short, the combination of two different methodologies namely the ethnographic methods of data gathering and grounded theory approach of data analysis in this study has enabled the identification of the characteristics (forms) of the TK that can be found in an indigenous community such as the Bateks of Kuala Koh. This further provides evidence to support the argument of this research that there is a compatibility and appropriateness of the combining

ethnography and grounded theory as a complementary research methodology in understanding issues relating to indigenous people. While some literatures have argued for the appropriateness of selecting a particular or single method in understanding a phenomena, some others have injected a 'mix and match' approach in employing an appropriate method to undertake research particularly in understanding social and indigenous issues. This study has employed the latter method which 'combined' ethnographic approach to gather data and grounded theory principles as to analyse the collected data in identifying the characteristics or forms of the TK related to medicinal plants of the Bateks of Kuala Koh. As reflected in the outcome of the study which is an understanding of the existing characteristics of TK in the study site, this study has provided further evidences and strengthened the earlier argument by some researchers(29, 30)on the appropriateness of using such approach in doing research.

11. Conclusion

The study began with the notion that there is a potential for the use of two different methodologies namely ethnography and grounded theory which was further followed by the discussion on the usage of such 'combined methodologies' in a number of earlier studies. The result of this study found that the combination of the two methodologies are indeed useful and in fact are complementary to each other in understanding the characteristics of the traditional knowledge related to medicinal plants of the Bateks of Kuala Koh as part of the indigenous community in the country. This approach although have been successfully used by other scholars elsewhere (29, 30), however, in the Malaysian context, and to the best of researcher's knowledge, this is among the very few studies which adopt this approach in particular, to understand issues with regards to indigenous people. The outcome of a greater understanding on the characteristics of the traditional knowledge related to medicinal plants of the Oang Asli Bateks that was achieved as a result of employing the 'mix' of ethnography and grounded theory methodologies such as this, indicates similar approach can be taken by other researchers in the future.

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