Contribution and Limits of IT-enabled Codification and Dissemination of Traditional Knowledge: Case of Bamiléké People

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Abstract

This research paper draws on the relevant extant literature on traditional knowledge codification as well as on a questionnaire-based survey to study the Bamiléké knowledge and the potential impact of new information and communication technologies (ITs) on such knowledge and its codification within the Bamiléké community, West and North-West Cameroon. The results show that the Bamiléké traditional knowledge is rich and diversified, and that greater part of it can be positively influenced by ITs, thereby fostering its dissemination to other civilizations, such as the Western world. Knowledge from secret Bamiléké societies and initiatory groups, by contrast, are proved to be impervious to any modern system, including ITs.

1. Introduction

The main objective of this research is to demonstrate the importance of ITs in the improvement of knowledge codification through a case study within the Bamiléké people, West and North-West Cameroon. While identifying specific forms of Bamiléké knowledge that may benefit to the Western world through their dissemination using ITs, this study also outlines the limits of such a contribution. “The codification of knowledge is a process that aims at reducing and converting knowledge into messages. These messages can then be processed as information that will serve to ‘reconstitute’ knowledge at a later time, in a different place, or by a different group of individuals” [1].

Codifying knowledge therefore requires the use of “cognitive” and technical means to make the knowledge available and accessible to individuals and/or communities at any time and everywhere. New information and communication technologies (ITs) may consequently play a key role in the codification and exploitation of knowledge, especially in traditional and oral-literature societies such as the Bamiléké. Despite the high potential of ITs as enabler of the codification and exploitation of knowledge, very few studies have been conducted to assess their potential impact on traditional and oral-literature societies, and it is still to be demonstrated why some forms of indigenous knowledge are kept secret. Consequently, this study is a first attempt towards bridging this knowledge gap in the literature. More specifically, this study draws on the knowledge codification literature as well on a questionnaire-based survey to examine the following research questions: (a) What are the elements of traditional Bamiléké knowledge that can be affected by ITs? (b) Which of them are specific to Bamiléké and may be extended to other civilizations using ITs? (c) What are the limits of knowledge codification and dissemination in the context of the Bamiléké community?

The remainder of this paper is structured as follows: Section 2 introduces the literature review; Section 3 presents our methodology and contextual framework. Section 4 presents our results and discussions, while Section 5 serves as the conclusion.

2. Literature review

As the Bamiléké culture is mostly oral-based, the relevant literature review should focus not only on knowledge codification and transfer in general, but also on the same process in the context of oral-tradition communities.

The literature on knowledge codification abounds. Authors tend to stress on the fact that the final objective of knowledge codification is “to facilitate the treatment of knowledge as an economic good, which can be exchanged, in particular on markets” (case of knowledge for firms and organizations) [1].

[2] argue that the process of codifying knowledge entails three distinct but related steps: creating models; creating languages; and creating messages. Once the knowledge is codified, it can be transferred, stored, recalled, exploited and valorize [1]. The same authors estimate that there are two forms of knowledge which are interrelated: the codified form of knowledge, and the tacit form of knowledge. The former refers to a form of knowledge that can be explicitly and formally expressed in words and numbers, in compliance with...
scientific procedures or universal principles. The latter form encompasses know-how (that results from the accumulation of practice), the mastering of a language (that results from the accumulation of the ability to communicate) and of “representations of the world” (that results from the accumulation of wisdom).

Knowledge codification involves both codified and tacit forms of knowledge, thus complexifying the codification process, together with the codification language. Moreover, [3] demonstrated that the codification process appears as a complex conversion process, where the codified and the tacit forms are not substitutes, but rather complements.

Another issue is the ability of the persons in charge of codifying knowledge to adequately carry out their task. For instance in a firm or organization, the ability of a cognitive agent to exploit different categories of knowledge matters, should take the following into account: “On the one hand, the existence of given tacit forms of knowledge (beliefs, languages, know-how), of accumulated learning and habits, and of norms will shape the ways codified knowledge is produced. On the other hand, the way codified knowledge is produced (the nature of the codes, the types of organisation, the nature of physical carriers of knowledge) will also shape the ways learning processes are directed, focused and assimilated” [1].

Other authors focused on the nature of codification depending on the types of knowledge considered. Indeed, the nature of the codification process is not the same if one aims at codifying a belief, a representation of the world, a specific know-how, or the mastering of a given language.

Whether the creator and manager of knowledge is an individual or a community ushers in another critical point in knowledge codification. From this perspective, it appears that there are two types of knowledge: individual knowledge and “community knowledge” (“common knowledge”). The collective building process within a society is underpinned by the need to construct a common knowledge, the need set collective rules and languages that facilitate the formation of knowledge, and the need to “mobilise socially the dispersed forms of individual knowledge” [4].

To understand the role of communities in the knowledge codification process in particular, various scholars classify them into “epistemic communities” and communities of practice [5-8].

[1] define the concepts of epistemic communities and communities of practice as follows:

“Epistemic communities can be defined as groups of “agents working on a commonly acknowledged subset of knowledge issues and who at the very least accept a commonly understood procedural authority as essential to the success of their knowledge activities” [5]. Epistemic communities can, thus, be defined as a group of agents sharing a common goal of deliberate knowledge creation and a common framework allowing the shared understanding of this trend. An epistemic community may then be concretely defined as a framework providing sufficient incentives for members of the community to make, knowledge accessible to the group, through their contribution to the process of codification. 13 What characterizes an epistemic community is also that the messages emitted by the community can freely circulate to the outside world”.

“The concept of communities of practice was introduced by [8] who, by focusing on individual practices, identified groups of persons engaged in the same practice, communicating regularly with one another about their activities. This goal is reached through the construction, the exchange and the sharing of a common repertoire of resources, and through the circulation and regular benchmarking of “best practices” [6]. Within communities of practice, the privileged knowledge is thus essentially the know-how [7], which is tacit and socially localised. Members of a community of practice essentially seek to develop their competencies in the practice considered.”

Previous studies also distinguish between “explicit knowledge” and “tacit knowledge” and estimate that codification should be used in the sharing of a specific type of knowledge. For example, [9] think that firms should use codification for sharing explicit knowledge and the network approach for sharing tacit knowledge. [10] argue that codification enjoys “scale economies” in knowledge reuse, while the network approach enjoys “expert economies” in providing value-added customized solutions. [10] conclude that firms that focus on providing standard solutions should follow the codification approach, and firms that focus on providing highly-customized services should follow the network approach” [11].

3. Case study methodology and contextual framework

As the main objective of this study is to improve our theoretical and practical understanding of codifiable and codified forms of Bamiléké knowledge, as well the potential impact of ITs on the extension of specifically Bamiléké knowledge to the Western world, a case study approach was chosen. A case study is “a research strategy which focuses on understanding the dynamics present within single settings” (p. 534) [12], this research strategy is well indicated when focusing on emerging phenomena and eventually induce theories [13]. This approach is recognized as a suitable
approach by many researchers to answer research questions such as “why” and “how” things are done [14], and therefore is appropriate to study forms of indigenous knowledge from a traditional and oral-literature communities like the Bamiléké -where research and theory are at their early and formative stages [13]-, and the potential impact of ITs on the codification and dissemination of such knowledge.

3.1. Categories of traditional knowledge in the Bamiléké community

First of all, it should be emphasized that the Bamiléké community, West Cameroon, is a traditional and oral-literature society. As a result, most of its knowledge lacks material supports such as books, digital materials, etc., as almost all is transferred orally and kept in the brain from one generation to another. Yet, knowledge within the Bamiléké people includes structured and spiritually codified knowledge, even though the codes being used are non-written and therefore simply memorized. While specifically Bamiléké forms of knowledge will be discussed in the “Discussion” section below, the various types of knowledge within the Bamiléké community can be classified as follows:

3.1.1. Tacit forms of Bamiléké knowledge. According to [1], the tacit form of knowledge refers to that form of knowledge that cannot be easily expressed, the main forms of it being “know-how (that results from the accumulation of practice), the mastering of a language (that results from the accumulation of the ability to communicate) and of “representations of the world” (that results from the accumulation of wisdom)”. In the Bamiléké community the tacit forms of knowledge may be subdivided into non-secret knowledge and secret knowledge.

Non-secret tacit forms of knowledge. This form of knowledge refers mainly to the know-how of different traditional vocational groups in the community, as well as to the mastering of the local language. This know-how is not recorded in any book, digital support or any other material support; the skills of the traditional workers are a result of accumulation of practice and are taught orally from one generation to another. Bamiléké tacit forms of privileged knowledge are essentially know-how, which is a core characteristic of communities of practice [7]. As we shall see below when dealing with the secret tacit forms of knowledge within the Bamiléké, the communities of practice are very reluctant to share their knowledge with the outer world, as they prefer to exclusively exchanges messages among the members. In the non-secret sphere of tacit knowledge, the Bamiléké know-how involves general and specific techniques:

Carpentry and joinery. It is an age-old professional in the Bamiléké community and consists in working wood in order to make wooden objects and roofs. Practiced traditionally, carpentry and joinery do not require sophisticated tools but only a saw, a hammer, a plane, a set square, any drill and nails.

Masonry. Masonry is one of the oldest occupations of the Bamiléké people. Traditional masonry involves the use of earth blocks/bricks and earth mortar. The earth blocks are made out of moulds where fresh earth mortar is being shaped and compacted. After demoulding, the brick is exposed to sun for drying. Earth mortar can be reinforced by adding straw or fibers. It is also used as binder in the spaces between the bricks during wall elevation.

Ironworks. Ironworks as they appear in the traditional Bamiléké community consist in heating pieces or junks of iron to make metal tools such as agricultural and hunting instruments. All blacksmiths have their own traditional kiln or burner for burning iron.

Hunting. The Bamiléké region’s vegetation is savannah mixed with some small forests alongside rivers and around chiefdoms (sacred forests). While hunting is forbidden in sacred forests, any other area with bushes is conducive to hunting in the Bamiléké region of Cameroon [15, 16].

Agriculture. Traditional agriculture within the Bamiléké people takes into account the vegetation, the climate and the mountain relief of the region. Particular techniques are used: ridge culture (“billonnage”)-, burnbeating, shifting cultivation, constant mixed farming on the same plot of land [17, 18].

Traditional medicine. Healing with traditional plant medicines is an old practice in the Bamiléké community. Virtually all diseases have medicinal recipes from plants and other fauna-based ingredients [19, 20].

Medium- and divination-based professions. They include tarantula telling, geomancy, castanet divination, the rapdomancy, the “kamsi” practice, “Nefam mediumnity”, ordeals-related practices in divinatory sanctuaries. Their mission is mainly to disclose truths, including those imbedded far in the future, predict forthcoming events, and guide in spiritual actions, such as the relationships with God and the ancestors [17].

Indigenous trade and banking. The Bamiléké have an original half-banking half-swap system dubbed “tchouâ” or “njangui”, which is revolutionary (see “Discussion” section below).
Pottery. Pottery is another traditional occupation of Bamiléké people, though they are many to get involved in it. Pottery is mainly practiced to make earthenware jars, pots and statues, most of which are nowadays used only for rituals.

Woodcarving. Woodcarving is still predominant today in carpentry and cabinetmaking. In Bamiléké chieftdoms, the pylons and walls of “chongos” (big traditional houses with cone-shaped roofs) are embroidered with carved images.

Music play. Music-play skills and the numerous musical instruments are an important form of knowledge within the Bamiléké community. [21], while investigating how Bamiléké music-makers create culture in Cameroon, identified up to 17 traditional music instruments in a Bamiléké subgroup. Some of them are specific to this people, while others are shared with other Sub-Saharan peoples (see “Discussion” section below).

Raffia wine tapping. In the Grassfields region, West and North-West Cameroon, there are two kinds of white wine: raffia palm wine and palm-tree wine. The former abound and is more appreciated than the latter. Tapping raffia wine consists in extracting this kind of wine from a matured raffia tree using peculiar traditional techniques. Whether the wine is tasty depends on the maturity of the raffia -easily identified by professionals and elders- as well as on the season (dry or rainy).

The mastery of local languages. The Bamiléké society has many dialects all stemming from a former – and already dead- mother language. The mastery of the language implies a full domination of its non-written codes, whether in terms of grammar and lexicon or idioms, proverbs, phonetics, etc. This also presupposes that there are sets of rules to abide by when speaking and practicing the local languages, most of which are generally not yet written [16].

Other know-how techniques: basket-making; weaving; dressmaking; earth-block making - the professional of which very often takes charge of digging pit latrines and wells; making hedges and pigsties; working in quarries and sandpits; performing male child circumcision; performing male death rituals [16] widowhood ritual, Bamiléké worshipping rites, or twins ritual [17].

Secret tacit forms of knowledge. Secret tacit forms of knowledge refer to knowledge that is mainly the sole property of secret societies in kingdoms, and is therefore shared and managed only by the members. Surprisingly this form of knowledge is not considered an “unarticulable knowledge”, in the sense provided inter alia by [5]. In other words, secret tacit knowledge within the Bamiléké people is a tacit knowledge that is normally accessible, but cannot be because the society considers it “secret” and inaccessible to everybody. While the pieces of knowledge forming the secret knowledge are not unarticulated per se, the codification process may be rendered more laborious by the secrecy that is maintained on that particular knowledge. In the Bamiléké community the following can be categorized as secret tacit knowledge:

Coded and complex language in secret societies and mystic initiatory schools. Within the Bamiléké community, the language in secret societies and mystic initiatory schools such as the Lâ’kam and the “Dah Peh” (case of Bafoussam people), is rendered more complex and inaccessible than the language of oral traditions. Oral literature, an oxymoron to designate orally transmitted information, includes epics and sagas, panegyrics, prose stories, lyric poems, ritual songs, and genealogies. These oral forms of literature, while imparting knowledge, are mostly embroidered with metaphors, similes and others figures of style. The language practiced within secret societies and initiatory traditional spheres goes appears to be more stuffed not only with complex metaphors and similes, but also with images such as catachreses, oxymorons, synecdoches, enigmas and parabolas. The rationale behind such complexification of language, indeed, is to keep the secrecy of knowledge so that only the members may access to it [17, 22]. More importantly, the fact that secret societies and initiatory spheres in the Bamiléké community practice a complex and secret language makes it more difficult to codify such a language during a knowledge codification process. Even though the main objective of a community of practice is not to create a “code-book”, it becomes critical when the community endeavors to make the knowledge accessible only to the fewest number. As the members of secret societies are numerically mean – since selection is very tough and access to knowledge over-controlled–, there is a risk to lose significant portions of knowledge over time as a result of the death of members, notably the most knowledgeable. So the need for building a “code-book” appears to be essential in the process of codifying the language used by such a restricted community.

Prior to administering a questionnaire to some Bamiléké dignitaries (see hereinafter), we had approached a number of insiders of secret societies, in line with a study by [17] concerning the subject, amongst others. Almost all of them were quick to cast away our curiosity to understand complex common phrases that are being heard from time to time in secret circles within Bamiléké chieftdoms. For example: “Defying the Nature at the point of picking up God’s offerings in worship places”; “Hunting blood in one’s own bush”; Sacrificing red-feathered cocks on the altar of power” (expression mostly heard in societies dealing
with totems); “He who picks a bone here never lacks flesh to share” (expression heard in mystic circles gathering in the chiefdom’s sacred forest); “To feed one’s tail”; “To double one’s skin”; “To have clean fingers and toes during sharing”; “To laugh with the Departed”, etc.

**Totemization.** This practice consists in offering totems to the dignitaries (including the chiefs) of the community [17, 22, 23]. Within the Supreme Council of Dignitaries, the real holders of power in the community, one of the members is endowed with special powers and knowledge to offer totems to his peers as well as to the chief and his collaborators. While the lion is the most common totem of Bamiléké paramount chiefs, totems such as panthers, buffalos, rhinoceroses, wild boars, boas, etc. are reserved to high-level dignitaries, and the others (any other animals) to low-level dignitaries [15, 17].

**Domination of spirits.** Secret societies are considered the privileged area for the Bamiléké community’s dignitaries to cope with spirits. Bamiléké people use their own techniques that are used to tame of fight spirits (see “Discussion” section below).

**Nékien and Lâ’kam practices.** The traditional initiatory schools of Nékien and Lâ’kam are particularly important with the Bamiléké community. The former is concerned with a mystic and religious apprenticeship performed by male youngsters of 9 to 17 years old once in their life. The apprenticeship takes place in a hamlet whose courtyard is fenced with banana leaves [17]. The Nékien practice is mainly carried out by only a few Bamiléké groups such as the Bafoussam, Baleng and Bamougoum people. The Nékien session occurs within the framework of a biennial cultural event lasting four months (December to March). With regard to the Lâ’kam, it is an initiatory school for the young heir and deputy heir of the deceased chief [15, 17, 22]. As a reminder, the Bamiléké people are divided into groups headed by chiefs (traditional rulers). When a chief passes away, his son (prince) who had been appointed by him when he was still alive has to spend nine weeks in a Lâ’kam, together with some of the chief-to-be collaborators. The appointed prince and his assistant – another prince – have to perfect their training on various traditional, religious and mystic issues before being enthroned.

**Ritual practices of Nefam.** They consists in using the graveyard of dynasty chiefs (thus the skulls of the deceased) to communicate with the departed, who help to predict and prepare for the future.

### 3.1.2. “Codified” forms of knowledge within the Bamiléké community

As recognized by [1], “codified knowledge refers to a view of knowledge as necessarily explicit, formal or systematic which can be expressed in words and numbers, scientific procedures, or universal principles”.

More specifically, codified knowledge within the Bamiléké people would mean all forms of knowledge that is systematized and is clearly expressed in numbers or generally accepted principles. Since the Bamiléké culture is mostly oral, it appears that the language is systematized like other forms of knowledge, but cannot be transferred, exploited or managed by means of a written or any other non-oral support. This notwithstanding, the form of knowledge we are referring to here has codes albeit immaterial.

A glaring example of codified form of knowledge in the Bamiléké community is the system of calculation.

Bamiléké people have their own traditional calculation technique, though it is close to other indigenous African systems. For instance, to measure lengths, heights and distances, they resort to numbers coupled with identifiers of distance, heights, etc. [16]. These identifiers of measurement may be concepts that are very well known in the local language as referring to other realities, but that are taken in this case in their connotative meaning. For example, “gµoû’tok’o” (Bamiléké-Bafoussam dialect) literally means “six moons”, whereas in the counting of months of a year, it refers to “the sixth month”, June. Furthermore, the same term of “gµoû”, literally meaning “moon”, enables to convey the concept of “women menses” and the measurement of the related period. In the same light, the Bamiléké people have special techniques to determine the various periods in seasons, using farming periods and other realities. For example, the period between July and early September is determined by the prominent agricultural activity that is carried out at that time: maize harvesting [16].

### 3.2. Potential impact of ITs on the codification and diffusion of Bamiléké knowledge

The ITs that may impact on these forms of knowledge encompass knowledge databases such as computer hard disks, CD-ROMs, DVDs and CDs, the Internet, ebooks, and other electronic means of codifying, managing and sharing knowledge. In the first place, it is worth mentioning that the impacts of ITs on knowledge codification depend on the availability of a written language that can better express specific knowledge within the Bamiléké community. “The process of codifying knowledge entails three distinct but related steps [2]: creating models; creating languages; and creating messages” [1]. So to create and systematize the codes to be used in the codification process, attention should be put on the type of language to use. In the one hand, some
codification languages – languages used to set codes – can better enable the diffusion of the knowledge codified, but will not be able to consider all the aspects and components of such language. On the other hand, other languages will allow that a knowledge be taken in integrity, but will not enable a large diffusion of the knowledge. Hypothetically, the Bamiléké languages can better express the codes, since some components of Bamiléké are expected to be very hard to express in foreign languages. However, Bamiléké languages are still developing their writing systems and lack some international notoriety. As a result, using Bamiléké languages to set codes during the knowledge codification process can hinder a large diffusion of such knowledge worldwide.

3.3. Results of a questionnaire filled out by Bamiléké dignitaries

On the other hand, it is worthwhile presenting the results of a survey through a questionnaire that we administered to some 26 Bamiléké notables in order to have an insight into a) their knowledge of ITs, their view on any potential impact of ITs on the Bamiléké traditional knowledge, and c) their assessment of the degree of the impact, if any, on some specific aspects/elements of Bamiléké traditional knowledge.

At the time of the survey, all the interviewees were literary people, the oldest dignitary being 64, a retired civil servant living in Nkongsamba, Cameroon. The notables’ ages ranged from 33 to 67 years old. One of them, a 55-year-old telecoms engineer, was very cognizant of ITs. While 08 of them were be members of more than one society, the others were could attend to the meetings of only one secret society. Secret-societies meetings are generally held on a weekly basis in the chieftdom’s sacred forest of the Bamiléké subgroup concerned. Fifteen of the interviewees were living in rural areas, in their respective native villages, constantly attending secret-societies meetings at the chieftdom. Those living far from their community chieftdom said to be obliged to travel at least once a month to attend the secret societies’ meetings and perform the related potential rites. Among the notables living in cities, seven were in the Bafoussam city – four of whom were natives and therefore attended their secret meetings at the Bafoussam chieftdom. All the interviewees were literate: 08 said to have dropped after one or two years at secondary school; 05 reached the fourth form, without obtaining the GCE Ordinary Level certificate; 07 reached the GCE Advanced Level; 04 were undergraduates and 02 were postgraduates. Most of the literate notables said to be more proud of their cultural knowledge as and when they compare it with other cultures. At the same time they are not very inclined to disclose what they deemed “personal to our people”.

In a questionnaire to be filled out by Bamiléké dignitaries, the following questions were asked:

1) What is your knowledge level about ITs (the Internet, e-commerce, CD/DVD/CR-ROM, telephone, etc.)? (choose a number on a scale from 1 to 7) (1. Very weak; 2. Week; 3. Mediocre; 4. Fair; 5. Fairly good; 6. Good; 7. Very good.)
2) Do you think ITs can help improve on the way Bamiléké people safeguard their traditional property?
3) How would you value the impact of ITs on the following elements of the Bamiléké’s traditional knowledge?
   - Customs and traditions;
   - Traditional professions (ironworks, carpentry, earth block-based masonry, hunting, traditional healing, agriculture, etc.);
   - Traditional techniques (child delivery, male circumcision, earth block making, raffia tapping, making pigsties and farm hedges, etc.);
   - Knowledge from secret societies and initiatory groups (such as the Lâ’kam and the Nékien).

When answering these questions, the interviewees had to choose just one number on a scale from 1 to 7: 1. Very weak; 2. Week; 3. Mediocre; 4. Fair; 5. Fairly good; 6. Good; 7. Very good. For the 3rd and last question, the interviewees could make some comments in line with their opinion-as the questionnaire had specified: “Answer (with possible comments)”. Their answers were not surprising as they virtually fell in line with previous results on the perception of modern practices and techniques (e.g. ITs) in the culture of Bamiléké. The results of the questionnaire showed the following:

(a) The nine-tenths of interviewees were aware of information and communication technologies. A great number of them selected the number 6, a few selected the numbers 7 (meaning “excellent”) and 5 (“good” knowledge of ITs). As a whole, their knowledge of ITs was between “good” (5) and “excellent” (7)

(b) Three ITs tools (telephone, the Internet and CD/DVD/CD-ROM) proved to be the best known, as the numbers 6 and 7 (“very good” and “excellent”) were being selected by the three-quarters of interviewees

(c) Answering the second question, the two-thirds of Bamiléké dignitaries admitted that ITs can improve significantly on the safeguard and dissemination of Bamiléké traditional knowledge
(d) The ITs that can impact most in this regard are the computer (hard disk), the book and ebook, and the Internet -as for the CD/DVDs, there are said to be less suitable when it comes to saving information for a very long time.

(e) As regards the Bamiléké customs and traditions as a whole, the impact of ITs can be “good” (40% of interviewees), “fair” (20%), or “very good” (20%); by contrast, another 20% believe their impact is/could be “very weak”.

(f) The ITs that can have the highest impact on the diffusion of Bamiléké customs and traditions are forms of knowledge that can benefit from “visual conservation” as well as testimonies of cultural manifestations (Internet-based and CD/DVD/CD-ROM/RAM-supported audio and audiovisual records).

(g) A great number of interviewees were convinced of a high impact of ITs on the diffusion of specifically Bamiléké traditional professions and techniques.

(h) Only half a dozen interviewees agreed on or wished the disclosure/dissemination of knowledge and practices from secret societies, traditional initiatory schools and secret rites, whether by using ITs or not; most Bamiléké notables deemed that this aspect of Bamiléké knowledge should be protected and kept secret at any costs for centuries.

Impact of books and ebooks. In an oral-literature society like that of the Bamiléké, the emergence of physical supports of knowledge is greatly welcome. For centuries knowledge has been codified tacitly, and its management or sharing has been made orally from one generation to another. Using supports such as paper books and electronic books to save the Bamiléké knowledge would have the benefit of not only impeding knowledge shrinkage over time as all is fixed on a support liable to better resist to time effects, but also enabling a far-reaching dissemination and management of such knowledge.

Impact of the computer and related storage devices. The computer appears as an outstanding IT tool for shaping, storing and managing knowledge, whether it is a modern or traditional knowledge, or a codified and disclosed knowledge or an undisclosed knowledge. The hard disk of a computer can indeed store a considerable volume of knowledge if the Bamiléké community indulges into a mechanism to save their traditional knowledge for a long time. CD-ROMs, CDs and DVDs are other devices that can be used to keep traditional knowledge. Besides, “a]s the knowledge stored does not disappear by being read, re-reading of the content of such storage media is possible many times. […] On the other hand, the same content can usually be copied onto an arbitrary number of additional carriers (books, CDs) at minor costs.”

(25). For example, concerning the Bamiléké culture, [21] recorded dozens of images and sounds when conducting a research on this people.

Impact of the Internet. In terms of codification and sharing of knowledge, the Internet appears to be top of the chart. Codification referring to the transformation of knowledge into information that may be easily processed, managed and shared, it is clear that the Internet positions itself as the better tool in this regard, though the quality and authenticity of Internet-published knowledge are sometimes questionable.

Traditional knowledge from the Bamiléké people has been taking advantage of the Internet in every respect (see “Discussion” section below). Moreover, while we agree with [24] that elements of languages are another type of traditional knowledge, some writings in Bamiléké languages are available online. However, this kind of information is not always easily understood and shared by a significant number of web community members, because they ignore such languages. Such texts should therefore be almost always accompanied by their English (or whatever Western language) translations or explanations.

4. Discussion

Our discussion will focus on three main aspects pertaining to the contribution of Bamiléké knowledge with the assistance of Its, and the limits of such a contribution: 1) There are forms of specifically Bamiléké knowledge that can benefit -and are already benefiting- the rest of the world through the use of ITs; 2) There are however some limits to the codification and dissemination of traditional knowledge in general, and of Bamiléké knowledge in particular; so much so that even the ITs would not help in this case.

a) The following forms of Bamiléké knowledge may be of critical contributions to universal knowledge:

• **With regard to music**, the Bamiléké people have particular and personal musical instruments, and therefore personal playing techniques. For instance, the following instruments are somehow specific to Bamiléké people:

  - “Ndé”. It is a set of dried seed pots tied in bundles with twine, which the performer ties to his calf and which creates a sound during the dance performance.
  - “Tchi-tchi”. It is a stick with metal spear tip on one end, containing metal ball; the performer shakes it when dancing.
  - “Dian houak-houak”: Hollowed bamboo length with slit grooves on two side; the performer...
scrapes a piece of metal up and down over the grooves to create a sound
- “Tchwa”: Two connected woven rattan pouches containing small, round, dried seeds that create a sound when shaken
- “Touôm kiak”: cow-skin covered, hand struck wooden drum, very often played in pair with a “me touôm” (smaller and longer)
- “touôm koun-tche”: a wooden slit drum played with two beaters
- Traditional metal whistle, used to “signal the beginning of a new song or dance step” [22] (p. 224)
- Wooden vertical whistle. It is controlled by covering and uncovering two or more small holes on the side of the instrument
- Pairs of machetes. They make bangs in mock battle interactions by performers, all being sonic and visual signs of power.

- **In terms of language**, what Bamileke languages offer to the Western world ranges from new verbal parameters to non-verbal and paraverbal parameters. For example, in terms of phonetics, the Bamiléké-Bafoussam language -mother tongue of others- provides sounds like Bafoussam language -mother tongue of others-
- **The “kamsi” practice.** A man or a woman vested with extraordinary powers can see, understand or feel “spirits” who talk to them and reveal them unveiled truths and future events [17]. But contrary to other civilizations’ practices, the authentic Bamiléké “kamsi” practitioner almost always goes through terrible divinity ordeals, and it very often punished by divinities when s/he disobeys or deceives people.
- **Rapdomancy.** It is a divinatory technique that was used by Ancient Egyptians as well. A wooden or bamboo-nervures weave stick is vested with magic powers, which gives it the capacity to shiver when asked a question or when it touches something (e.g. the sweat or blood -even already dried- of a thief who is chased) [17 (pp. 168-169).
- **The Nefam communication practice with the deceased.** The Nefam practice is concerned with revelations made by the spirits of ancestors, especially those of departed traditional rulers (Fo), who are buried in the chiefdom’s pantheon, the Nefam [17]. The aim is to establish a communication relationship with the deceased chiefs in order to have their advices, views and predictions on the present and future. Contrary to what other civilizations do, what is striking in this Bamiléké practice is that the communication with the departed is based on the skulls of the same dead. These skulls are linkers, energizers and the sanctuary of the deceased’s spirits during communication exchanges. As a practitioner of Nefam rituals stated, “the dead are still alive thanks to their spirits, and they have the advantage of being in the two worlds, and therefore can see and foresee what a mortal cannot”.
- **Concerning alternative medicine and pharmacology.** Like other Sub-Saharan African people, the Bamiléké people have a rich and efficient pharmacopeia, with outstanding findings on fauna and flora therapeutic elements, which enable them to set out recipes that have proven their efficacy on dozens of tropical diseases. Traditional healers and academic researchers have published many papers and books on Bamiléké alternative medicine and pharmacopeia.
They include [19] for peptic ulcer, [20] for prostatic illnesses; other papers have been recently published on traditional medicines for HIV/AIDS and opportunistic infections in Cameroon (case of skin infections), male infertility, fibromyoma, urinary lithiasis, etc. (e.g., [26, 27]).

- Concerning business. Bamiléké people have an original half-banking half-swap system called “tchouâ” or “njangui”, which could be well marketed abroad. This has for centuries helped them to control over the economy of Central Africa. The “tchouâ” consists in gathering money -at the beginning of a practice, there were rather goods- from the members of a group on a weekly or monthly basis, then lending it to one member, provided that s/he reimburses the amount by installments, as and when another member benefits from the same amount collected by his/her peers the following week or month, until all members of the group are satisfied at the end of the round [17].

- As regards the domination of spirits. The Bamiléké do not know about the Pacta Daemoniorum of Salomon or any Western technique to tame of fight spirits. They have their own knowledge for the same purpose, which could be well disseminated. On the one hand, the demonic spirits, such as Astaroth, Belzebuth and Lucifer, are fought or tamed by the gifted members of secret societies. Once tamed, the said spirits may be enslaved and sent to special missions. On the other hand, the good spirits, such as Adonay, are lured and taken advantage of in one way or another [17]. This author distinguishes between the spirits of the air, the spirits of the earth and the spirits of the water. The Bamiléké practice of “Ba’bong”, which consists in decelerating, deviating or postponing the rains, belongs to this category of spirit-domination actions, together with levitation, which is a defiance of the laws of gravity leading to a possibility to stay in suspension in the air or even fly, without falling down [17].

b) Limits.

As secret forms of tacit Bamiléké knowledge (see above) are inaccessible to the majority and look too complex, they are very likely to be codified and made available as information to the public [25]. The results of our questionnaire-based survey actually showed that those forms of knowledge are impervious to any modern system, including the ITs, and are therefore hard to disseminate. Of course, as [28] (1982, p. 78) note, “tacitness ... is a matter of degree (and) ... the same knowledge, apparently, is more tacit for some people than for others”.

The following forms of knowledge remain secret and are retained by a very small number of community members:

- The Nefam practices
- Bamiléké totemization
- Secret societies’ rituals and practices; e.g., the taming of spirits (evil and good), the retention/diversion of rain, the art of invisibility/ubiquity/body doubling, etc.
- The Nékien and Lâ’kam practices and rituals (secret initiatory schools).

If secret forms of knowledge within the Bamiléké community remain the prerogative of a small group of the community, therefore they may not help others, including Western cultures. Guardians of tradition endeavor to make sure this situation never change. Moreover, the advent of ITs and what they bring in their wake -the Internet, Web 2.0, DMP, RFID, googleization, etc. exacerbate the insecurity of knowledge, knowledge ownership, and hence people who use the knowledge-, frighten the deeply traditional Bamiléké. A solution may be an increased patenting of all facets of indigenous knowledge, including purely spiritual elements (rituals, totemization techniques, spirits taming techniques, etc.). Another hope may come from the desire of the Bamiléké youths to disseminate all forms of knowledge, including the secret forms, so as to cope with misconceptions concerning an alleged “low standard of African knowledge”.

Another limit is related to encoding knowledge, whatever the technique and the people concerned: “we know more than we can tell” [29] (p. 4). This applies also to Bamiléké knowledge. Even though tacit knowledge can be expressed by an action, it defies a verbal articulation. As a result, it cannot be encoded, i.e. given a (complete) description of how to do it. So even if all forms of Bamiléké traditional knowledge could be encoded, the codification process would never be complete because of linguistic and formulation gaps. IT tools such as a computer may help to enhance the formulation of information, the knowledge codified, but it would not solve the whole problem.

ITs would not help if the codification process of traditional knowledge may rather denature the said knowledge. [16] argue that as codification leads to the expression of knowledge and its public-good characteristic, “there is no possibility to exclude anyone who wishes to use the good (no private appropriability)”, and as a consequence any use of the knowledge may use or express it in their own way, while denaturing it and even trying to re-encoding and re-appropriating the same. For instance, successive and multiple transfers and storages of knowledge using ITs -Internet, hard disk, CDs, DVDs, etc.— has the side effect of denaturing the knowledge. The Bamiléké people, in this regard, are known to be very cautious, and therefore they seem to prefer keeping greater part of their traditional knowledge uncodified or non-
codified (i.e. only kept in human memory) and inaccessible as public good.

5. Conclusion

The aim of this research work was to draw on the relevant extant literature on traditional-knowledge codification as well as on a questionnaire-based survey to study the traditional knowledge of Bamiléké people (Cameroon) and the potential impact of new information and communication technologies (ITs) on the codification and diffusion of such knowledge. It has been acknowledged that the Bamiléké people have a rich and diversified cultural property, including tacit, codified, codifiable, non-codified and non-codifiable forms of traditional knowledge. Many of these knowledge elements, which are specific to this community, may well be disseminated to outsiders using ITs. By contrast, other forms of Bamiléké knowledge, known as secret and hard to disclosed, remain the prerogative of a very small group within the Bamiléké community. Even by ushering in ITs, they would not be easily put at the disposal of the general public and therefore serve the global community of knowledge learners. This is one of the major limitations to Bamiléké knowledge sharing. Such a limit is better epitomized by the impermeability of secret forms of Bamiléké knowledge (coming from secret societies and initiatory groups or rituals) to modernity. A possible solution may be the patenting of all forms of traditional knowledge, including spiritual (totemization techniques, techniques for taming spirits and dominating the cosmos, techniques of communicating with spiritual entities, multiplying goods, etc.). At least this might ensure Bamiléké traditionalists that property rights on their diffused secret knowledge would be always respected.

6. References


