The purpose of this article is to show the knowledge management processes upstream at the university if the literature review is oriented downstream at the company level. At the end of the research carried out at the University of Antananarivo, which provides open and distance learning in management sciences (Management ODL), Nonaka's model on SOCI (Socialisation, Outsourcing, Combination and Internalization) adapted to the quality management process recommended by the ISO 9001 version 2015 standards made it possible to establish a model for mapping ODL's SOCI processes. The direct transfer of knowledge, through socialization, from tacit knowledge to tacit knowledge represents 10% against 90% for the indirect transfer of knowledge.

INTRODUCTION

At the heart of the third millennium, knowledge management, which is a rapidly expanding field (Ermine Jean Louis, 2014), is one of the major concerns of social science researchers. It is presented today as a major issue in the functioning of organizations and societies (Pesqueux-Yvon, 2011). By definition, it can be considered as "a set of concepts, methods and technologies that allow members of an organization to work together in the direction defined by the organization, to link available information, knowledge production and the development of individual and collective skills" (Knauf, 2010). However, Ababacar Mbengue (2004) finds knowledge management to be a proactive, often explicit and systematic approach to enhancing the value of the company's intangible resources. This approach integrates activities of creation, collection, organization, dissemination and exploitation of explicit and tacit knowledge useful to the company. In particular, this requires transforming individual knowledge into organizational knowledge and importing knowledge located outside the company in order to make appropriate use of it within the company. In other words, the source of knowledge in the individual is located upstream, while its exploitation in the organization and/or in the enterprise is located downstream. While several studies have focused on the latter point, this article focuses more on the former, which is none other than the training of the individual. But why is it called open and distance learning (or ODL)?

The answer to this question requires clarification of two fundamental approaches conveyed in the terms ODL. These are "open training" on the one hand and "distance learning" on the other. For the first approach, Bendouba A. (1992) gave the fundamental characteristic of open training compared to traditional training. It is their greater accessibility, that is, the flexibility of their modes of pedagogical organization that specifies the open aspect of a given training. According to Bernard Blandin (1998), the purpose of open training is to understand training activities that are based, in whole or in part, on non-"face-to-face" learning, whether self-training or tutoring, at home, in the company or in a training center. The same author has given more details on this open learning system based on "any form of study whose flexible aspects make it more accessible" (Blandin Bernard, 1999). He emphasized for this definition that what characterizes "open" systems is their accessibility, a term that applies equally to learning content, the way it is structured (modularity), the places of learning, the times of learning, the modes of teaching and the media. Indeed, this notion of "flexible arrangements" justifies the raison d'être of open learning. For the second approach, distance learning was born with the postal organization in the mid-19th century, the use of images followed the birth of photography; radio, television, video and
digital media gave rise to new devices each time (Morin Philippe, 2003). It is based on any form of study that is not under the permanent control of a director of studies. In other words, Blandin Bernard (1999) reiterated that it is the learner's autonomy during a more or less important part of the training that characterizes this type of distance device.

Therefore, the combination of these two open and remote approaches makes it possible to retain the simple definition of ODL as a flexible training device in time and space. This concept of “flexibility” is related to the definition put forward by AFNOR on the training system designed to allow individuals to train without moving to a training location and without the physical presence of a trainer. Moreover, the DGEFP characterizes open and/or distance learning as a flexible training organized system according to individual or collective needs (individuals, companies, territories). It involves individualized learning and access to local or distance resources and skills. It is not necessarily carried out under the permanent control of a trainer. However, how can knowledge transfer management be improved at the ODL level? The answer to this central question, around which this research is structured, will be divided into two distinct parts. The first will concern the theoretical and methodological framework. The results of the study and the discussions will be shown in the second part in order to draw a conclusion at the end on the ADF improvement system.

Theoretical and Methodological Framework

The empirical study of ADF requires an analysis of the concepts of knowledge management. Two essential views, the epistemological on the one hand and the economic on the other, are an essential step before the actual presentation of the work methodology.

Epistemological and economic views of knowledge management

Within the epistemological framework, several research studies on knowledge have been carried out, such as those of Polanyi, M. (1966), Nonaka and Takeuchi, (1995); Ermine Jean-Louis, (2014). This knowledge has two facets. On the one hand, the rationalism approach (Platon) considers it as an a priori mental process resulting from deductive reasoning. On the other hand, the empirical approach (Aristote) sees it as the result of a posteriori experience, acquired from experience (Yvon Pesqueux, 2011). These two approaches make it possible to distinguish between multiple forms of knowledge. Thus, S. Duizabo & N. Guillaume (1996) distinguish three categories of organizational knowledge where we find the trilogy "to know – to make – to understand" by J.-Y. Prax (1997):

- Knowledge related, descriptive, static, directly usable, more like information,
- Knowledge of how to do things is dynamic, more a matter of methods and procedures,
- Knowledge related to understanding, resulting from enrichments brought by exchanges between people and rather from communication.

For their part, Ababacar Mbengue (2004) finds four models: strict knowledge (knowledge), know-how (skills), life skills (attitudes) and learning skills. According to Collins H. (1997), there are five types of knowledge. These are, first, Embrained Knowledge which is formed by theories; second, Embodied Knowledge which is based on practices; third, Encultured Knowledge which is embedded in culture or social relations; fourth, Embedded Knowledge which resides in routines; and fifth, Encoded Knowledge which is oriented towards signs, symbols and codes of practices such as books, manuals and computer data.

However, the two categories of knowledge, which are cited much more frequently (Polanyi, (1966); Winter, (1987); Nonaka and Takeuchi, (1995); Reix, (1995); Faten Louati and Lubica Hikkerova, 2016) are none other than tacit and explicit knowledge.

Explicit or codified knowledge formalized knowledge that can be transmitted through formal language or clear codes and facts. Examples include books, procedures manuals, teaching systems and databases (Reix, 1995).

Tacit or implicit knowledge (embodied knowledge) finds its source in actions, usage and its application in a specific context. It can take very diverse forms such as expertise, skills, know-how, etc. It is difficult to measure. It takes the form of knowledge that is impossible (or very difficult) to translate into speech. This is why it is incommunicable by a language. The essential characteristic of tacit knowledge is that it is difficult to transmit, cannot be verbalized and cannot be articulated (Polanyi, 1966). In this case, Reix, (1995) described two forms of tacit knowledge:

- Contextual knowledge: a set of implicit values and norms that are more or less widely shared (what we do and what we don't do).
- Practical knowledge: this is the know-how acquired through experience. It is also called procedural knowledge corresponding to a process (how to do?) as opposed to declarative knowledge. It appears in the form of "routines".

In the absence of formalization through language, knowledge is no longer separable from its holder and its context of use; it can only be acquired through processes of imitation and experimentation. Consequently, it is generally accepted that tacit, implicit or informal knowledge is a source of competitive advantage (Faten Louati and Lubica Hikkerova, 2016) because it is acquired mainly through practice and experience, whereas explicit or formal knowledge is easily codifiable, archivable and transmissible, especially through documents or language.

If this was the epistemological aspect, it is necessary to evoke now the economic aspect of knowledge. From this point of view, the knowledge-based economy is based on a long trend of increasing resources devoted to the production and transmission of knowledge and on a major technological event (Dominique Foray, 2000). This knowledge is then conferred to productive work based on a particular good. Arrow K. (1962) attributes the characteristics of a particular good on the basis of three properties close to those of public goods:

- It is not controllable because a person who disseminates knowledge is dispossessed of it without being paid, while others can use it. But to be enriched (because otherwise it becomes impoverished), knowledge must be disseminated.
She's unrivalled in terms of her "consumption". Consequently, in the universe of neo-classical microeconomic theory, the price of knowledge cannot be fixed since its marginal cost is zero.

It is cumulative because the flow depends on the available stock.

However, productive work is, according to Adam Smith (1776), work that adds value to the object on which it is performed. Conversely, work that does not add value is unproductive work. The asset of knowledge then corresponds to service. How to define the concept of service? A service activity is an operation, aiming at a transformation of the state of a reality C, owned or used by a consumer (client or user) B, carried out by a service provider A, at the request of B, and often in relation to him, but not leading to the production of a good likely to circulate economically independently of the medium C (Gadrey J. 2003). The provision of a service can be analysed as the provision of a technical or intellectual capacity to a user or client to introduce a change in a situation or in a reality. Its scope and intensity are necessarily variable. The typologies of services and the path to intellectual service provision are market and non-market services Clark Colin (1960). For the author, market services: the counterpart is the payment of a market price, whereas non-market services: they are not accompanied by the payment of a market price. For example, services are financed on the basis of taxes, the counterpart of which is not a market price. Service activities have a number of classic characteristics. The best known include intangibility, uncertainty and non-stockplability. Others, less well known, refer to the relatively similar notions of servuction, co-production and service relationships. These different characteristics, especially the latter, become all the more accentuated as we move closer to the intellectual services associated with knowledge. This knowledge through the service offered by the "human person" is then transformed into liquid in the organization, for the organization and for the satisfaction of human needs.

Thus, the realization of a service requires knowledge actors. Jean-Pierre Bouchez (2004), a consultant in management and human resources development; has forged, in the knowledge economy, an illustrated approach for identifying and analysing knowledge workers. According to the author, knowledge actors occupy a predominant place in the organization. It is from the 1960s onwards (according to Bouchez, Jean Pierre, 2004) that the concept of activities and professions centred around knowledge began to emerge. It is probably to the economist Fritz Machlup (1993) that we owe the first investigations on knowledge work as early as the 1950s. He published his classic book, the Production and Distribution of Knowledge in the United States. The author demonstrated the importance of the growth of activities related to the production of knowledge in the USA (knowledge-producing activities). Since the 1990s, the term "knowledge workers" has gradually gained currency and popularity, mainly with other authors such as Druker (1993). He showed that "knowledge is the resource that matters. The traditional factors of production, land (i.e. natural resources), labour and capital have not disappeared but have taken a back seat. (...) whether it is considered desirable or not, these developments respond to an irreversible change: now knowledge applies to knowledge itself". An absolutely decisive factor of production, the real resource that controls everything is no longer capital, nor land, nor labour. It is knowledge. Above all, it confirms that the knowledge worker, in order to be productive, must be considered as capital and that its growth must be promoted, whereas economists and most managers consider manual workers as a cost that must be controlled and reduced.

The knowledge worker is thus considered the owner of his or her skills. Drucker (1999) indicates that an employee who performs manual work is not the owner of the means of production. He or she may, as is often the case, have valuable experience. He owns his means of production. The knowledge that lies between his ears is perfectly transportable and represents an enormous capital. The knowledge worker is indeed mobile. An extensive concept of knowledge workers has emerged. Knowledge workers are described as people with important knowledge. Robert Reich (1991) in turn analyzed manipulators. Knowledge workers include all problem solving, problem identification and strategic brokering activities. Rifkin Jeremy (2000) sees knowledge workers as a new vanguard. It is an elitist conception. Knowledge workers are manipulators of abstractions. They manage the new high-tech information economy. Knowledge and ideas feed the information society.

At the end of these two epistemological and economic views, the review of the literature on knowledge management shows that there are several forms of knowledge, on the one hand, and there are also several works by the actors of this knowledge on the other hand. For the latter, we should recall the points of view of a few authors such as Drucker Peter (1999), who proposes a rather extensive perspective that includes many professional activities. Jeremy founded the much more elitist conception, while Robert Reich (1991) assumes an articulation and combination of the skills that knowledge workers must mobilize. Jean-Pierre BOUCHEZ (2004) has shown that there is a need to focus on forms of activities such as data processing, dissemination of information and knowledge, and the sale of ideas and concepts.

In this case, how can research be conducted in the face of different types of knowledge, knowledge actors and their work in knowledge transfer? Faced with a multitude of concepts that have already been presented previously, it is necessary to clearly define the theoretical framework of this research on upstream knowledge management, more specifically at the ADF level. The answer to this question concerns the methodological framework, which is the subject of the next step.

Methodology

Within the framework of the ODL, the SOCI model of Nonaka (2000) was taken into account in order to analyse the improvement of the remote knowledge sharing system. This concept shows four conversion processes between tacit and explicit knowledge through Socialization, Outsourcing, Combination and Internalization. Each process can be considered as a set of correlated activities that transform input elements into output elements. This is the reason why the methodology adopted for the realization of the present research is based on the "process approach" recommended by the ISO standards version 2015.
In order to do this, basic information, i.e. data from the ADF, is the input to the process upstream, on the one hand, and the data for making decisions with regard to students, teacher-researchers and general administration form the downstream process, on the other hand. In order to ensure that the recipients of these outputs could benefit from the research results, the main focus of the process based on the empirical study of the ODL ensured the processing of the inputs. It should be noted that this experimental analysis was framed within the research on improving the knowledge management system at the university. This ADF, a project already operational since the 2015 academic year, at the University of Antananarivo, is in fact the empirical study area. In order to know its experiences, the data were derived from observation and survey in the form of a survey. This observation made it possible to collect internal data in order to know the real situation experienced in the organization. In addition, a survey of 110 people was carried out to find out their views on knowledge management in ADF. Questions focusing on knowledge transfer processes were asked to the interviewees.

It must be admitted that the sample was so limited to 110 individuals out of 910 students, i.e. about 12% of all students enrolled at all levels (Bachelor's and Master's) at ODL during the 2018/2019 academic year.

RESULTS AND DISCUSSIONS

The processing of all the data allowed some quantitative data such as transfer rates to come out. Analysis of the data obtained led to the establishment of a model for mapping ODL processes following the models of Nonaka (2000).

Knowledge management process at the ADF level

At the level of ODL, the knowledge management processes were studied taking into account both the process approach recommended by the reference frames of the ISO standards version 2015 and the observation of the experience of the FOAD Gestion of the University of Antananarivo.

According to this diagram, the three (3) main processes such as the management process, the implementation process and the support process ensure the transformation of the needs and requirements of candidates within the ODL, as input elements, into the satisfaction of graduates, as output elements. The identification of needs and requirements in terms of flexibility of time and space of the system was validated by 65% of respondents while 70% expressed their satisfaction on condition that the training effectively leads to the employability and creativity of the graduates.

To do this, the management process was justified by the respondents. Seventy percent of them stated that it is the Teacher-Researchers who can ensure the steering and improvement of all the processes by carrying out the pedagogical interactions. These teacher-researchers can be both designers and tutors.

At the level of the support process, the answer on the question of administrative and technical interactions is clear, it is the PAT with 55% of answers, 21% prefer teachers and 24% for both entities.

As part of the implementation process, it was requested to show the workloads related to knowledge management according to the SECI system of Nonaka (1995; 2000). In this case, the following responses were provided:

- Socialisation, from tacit knowledge to tacit knowledge is evaluated at 10%; the direct relationship between the actors on group work and tutoring work (face-to-face and distance learning), experimentation in the field or in the company and the student's personal work (SPW);
- Outsourcing, from tacit knowledge to explicit knowledge is placed at 15%; the supervision of the learner both academically and professionally according to a methodology, the elaboration and presentation of reports or research papers;
- The combination of explicit knowledge is considered at 25%; the sending of courses by element, the supervision of theoretical research work, the review of literature, the methodology of academic work and the production of articles;
- Internalization, from explicit knowledge to tacit knowledge is valued at 50%; the support of the learner, the internship, the capitalization of theoretical knowledge and application in the field.

Managing the transfer of knowledge on ODL

The review of the literature on knowledge transfer shows models [Polanyi (1966), Nonaka, (1995; 2000); Ermine Jean-Louis, (2008; 2014)] across levels of analysis within the firm (Prévot Frédéric, 2007) and intra-organizational relations (Berthon, 2001). The extension of the work of Nonaka (1995; 2000) seems to be fascinating on the modalities of upstream knowledge transfer at the ODL level. However, knowledge transfer processes can be carried out in two sub-elements: direct and indirect transfer. According to the information obtained from the ODL, direct knowledge transfer represents 10% of the work volume as opposed to 90% for indirect transfer.
Direct transfer of knowledge

According to Nonaka (2000), socialization is a system of direct transfer of tacit knowledge to tacit knowledge. To do this, the direct relationship between teacher and learner is a prerequisite. In spite of the distance in time and space between the actors of ODL, they can communicate with each other through the networks that enable them to learn tacit knowledge. These actors include Community of Practice (COP) and Community of Interest Network (COIN) such as Teaching staff and Administrative and Technical staff.

The tacit knowledge of teachers is difficult to transmit since this knowledge cannot be materialized through media such as books or other documents because it is innate. Hence, direct relations between the actors of knowledge are systematically imposed. As a result, the organisation of group work and tutoring (both face-to-face and distance learning) is more common in distance learning.

On the group work side, they represent 10% of the student's workload. These groupings or other forms of collective student work are often the result of pedagogical considerations. Given technological developments and pedagogical practices, they are not a requirement from the point of view of supervision, as long as there are other forms of monitoring, supervision and control of attendance. The assistance of students to the grouping is not, in fact, compulsory, but it seems to be indispensable in order to dispense some of the tacit knowledge.

Mentoring is the transfer of tacit knowledge through the companionship of an individual or group of individuals. The term companionship is often used in everyday language. It even officially designates, in some organizations, mentoring arrangements (Lucile Vadcard, 2018). However, Anne-lise UlmAnn (2018) finds that the term mentoring covers many practices, none of which are clearly defined. It is often a question of training or accompanying a beginner. The author asks the question about the tutor's role in learning for these beginners if it is a matter of showing, explaining, learning to do, delegating and sharing the work. The answers to these questions vary depending on the situation. In reading several studies on tutoring, it was found that tutors are often volunteers to take on this responsibility of transmission. Some articles also note the formative dimension that tutoring activity takes on for them (see Thébault, 2014). This formative dimension may be the origin of the name "tutor trainer". He is at the heart of the training system but his participation in the learning process should not be limited to his mere presence on site. Other types of supervision exist, such as pedagogical and technical support in the context of a resource centre, and distance tutoring, whether synchronous or asynchronous. In this case, Martine Cauvin and Jacques Lacombe (1999) specify the need for a relationship between the teaching community and the individual learner based on the model of a return to personalized dialogue through the dual process of cooperation between teachers and cooperation between learners. The virtual approach, with tutoring, makes it possible to individualize one's own path and to appropriate knowledge and know-how at one's own pace (Martine Cauvin and Jacques Lacombe (1999).

Indirect transfer of knowledge

Indirect knowledge transfer at the ADF level accounts for 90% of the work volume. This process is characterized in three forms: outsourcing, internalization and combination.

Firstly, it is the outsourcing of tacit knowledge to explicit knowledge. The purpose of this action of explicitness is to transform tacit knowledge into knowledge in a palpable informational form. The transfer of knowledge is, in this case, carried out in an indirect way, since the teacher plays the role of intermediary while facilitating and supervising the student both academically and professionally according to a well-defined methodology during the elaboration and presentation of research reports or dissertations. Two methodological approaches have been proposed by Ermine Jean-Louis (2008). The first type of approach concerns the transcription of knowledge while the second is based on knowledge modelling or knowledge engineering. These two elements can be complementary because the simple transcription of tacit knowledge allows the construction of models adapted to the nature of the knowledge to be described in order to be able to then represent it in adequate formalisms. (Jean Charlet, 2002).

Second, it is the combination of explicit knowledge. In other words, explicit knowledge will be indirectly transformed into explicit knowledge. From this perspective, information and communication technologies (ICTs) are an unconditional and automatic vector of development, according to Karsenti Thierry and Collin Simon (2011). Moreover, Messaoudi Faouzia et al. (2012) shows that the development of ICTs offers, for the benefit of education, better opportunities for the dissemination of knowledge. With the help of the ODL platform, the combination of explicit knowledge is done through the delivery of courses by component and framing of theoretical research. This action enables students in ODL to carry out literature review, academic work methodology (or AWM) and production of academic documents.

Thirdly, it is about the internalization of explicit knowledge to tacit knowledge. This system of internalization of knowledge consists in assimilating and appropriating theoretical knowledge in practice through the teacher. This process requires two classical dispositifs: experimentation (personal or collective) and training, according to Ermine Jean-Louis (2008). The first dispositif focused on experimentation consists of a kind of impregnation of the student in a given organization or company. For this to happen, people must recreate, from the explicit knowledge they share, their own tacit knowledge that will serve them in a specific way in their work. Internalisation is one of the modes of knowledge transmission towards behavioural change and organisational innovation. It enables the student's work system to be changed during a period of internship in the company after reading internal devices such as procedure manuals.

The transfer of knowledge takes place in a direct way between the tacit knowledge essentially held by the human mind. On the contrary, the existence of explicit knowledge justifies the indirect transfer of knowledge through the means of the information system. The two fundamental activities are the activity of acquiring the knowledge produced, and the activity of cognition, relating to the transmission of this knowledge.

CONCLUSION

On reflection, the knowledge management system, not only at the company level but also at the training level, more particularly on ODL, is a long-term task, especially in terms of
knowledge transfer processes. Following the review of the literature, many authors focus more on the management of the factors of the knowledge process at the level of the company, i.e. downstream. The best articles of the Harvard Review on Knowledge Management in Practice (2003) manage to bring together the contributions of about fifteen authors. Their contributions focus on several aspects such as the strategies to be applied to organize, develop and transmit knowledge within the company, the forms of organization to be favored to facilitate knowledge sharing, collective learning and change. They also tried to avoid the traps of inertia or passive resistance and to answer the question on motivating and empowering communication that promotes learning. The same is true of the work of Polanyl, 1966 and Nonaka, 1995) which is oriented downstream on tacit and explicit knowledge transfers at the enterprise level. The contribution of this article focuses on the process of knowledge transfer from upstream. In other words, it may be a continuation of the work of Nonaka (2000). Following the research carried out at the University of Antananarivo, which provides open and distance learning in management sciences (ODL Management), Nonaka's (2000) model on SOCI can be adapted to the quality management process recommended by the ISO 9001 version 2015 standards. This system will make it possible to transform input elements (needs) into output elements (satisfactions). In the framework of the ODL, the direct transfer of knowledge, through socialization, from tacit knowledge to tacit knowledge, represents 10%. This is done through group work and tutoring, experimentation in the field or in the company and the Student's Personal Work (SPW). On the other hand, indirect knowledge transfer is evaluated at up to 90%, of which 15% for Student's Personal Work (SPW). On the other hand, indirect experimentation in the field or in the company and the socialization, from tacit knowledge to tacit knowledge, of the ODL, the direct transfer of knowledge, through (needs) into output elements (satisfactions). In the framework of the ODL, the direct transfer of knowledge, through socialization, from tacit knowledge to tacit knowledge, represents 10%. This is done through group work and tutoring, experimentation in the field or in the company and the Student's Personal Work (SPW). On the other hand, indirect knowledge transfer is evaluated at up to 90%, of which 15% for outsourcing, from tacit to explicit knowledge, 25% for combining explicit knowledge and 50% for internalization, from explicit to tacit knowledge. In all cases, indirect systems are based on research and field training.

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