

A CONCEPTUAL MODEL OF KNOWLEDGE EXTENSIONISTS IN THE PROCESS OF INTERNAL KNOWLEDGE TRANSFER IN HIGHER EDUCATION IN NIGERIA

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Abstract

This study provides a first attempt to introduce the role of knowledge extensionists in the knowledge transfer process in higher education. A structured questionnaire was designed and administered among some selected lecturers and knowledge extensionists to obtain firsthand information about knowledge transfer. Also an oral interview was conducted on some staff to supplement information obtained through the questionnaire. Findings showed high acceptance of the already established factors that affect Knowledge transfer (KT) in higher education from earlier studies with an overwhelming 95.3% of the male lecturers and 94.5% of the female lecturers in the survey being classified as having a high acceptability level to the factors and their established relationships. Furthermore, it was found that the most influential factor to effective knowledge transfer according to the respondents was shared understanding between a teacher and a student with 98% of the male respondents agreeing and 100% of the females following suit. The study identified three important factors with regards to the extensionists that may affect effective knowledge transfer. These were used to develop a conceptual model. Based on this, an improvement was made on the already existing knowledge transfer in higher education (KTHE) model by Ko et al to accommodate the role of the extensionists. The study found a significant relationship between Extensionist credibility, experience and background, a path not addressed in the earlier literature. It was concluded that the role of knowledge extensionists really exist in our higher institutions of learning and is very relevant in order to bridge the gap created by inefficient manpower in most areas of study.

Keywords: Conceptual model, Knowledge management, knowledge transfer, knowledge extensionist and Higher education

Background to the Study

The rapid growth of data on technologies triggers the transformation of data to useful information, known as knowledge. Nowadays, people are aware of the importance of knowledge and ways to acquire, recognize, capture, retrieve, use or measure, manage and collaborate it so that the knowledge can be shared without losing it (Maizatul and Chua, 2006). As a result, the term 'Knowledge Management' (KM) is created for this purpose. KM has been widely accepted and implemented in organizations and

31 See *Minors Opsi v. Secretary, Department of Environmental and Natural Resources*. Reported in C.A. Toebes (1999) *Right to Health as a Human Right...* School for Human Right Research. Op cit.

knowledge is recognized as the most important resource of organizations (Alvesson and Karreman, 2001; Minu, 2003; Nahapiet and Ghoshal, 1998; Spender and Grant, 1996 in Christian and Andrian, 2008). Manipulating knowledge creation, knowledge storing, knowledge sharing, and knowledge application helps organizations gain competitive advantage (Nonaka et al., 1994, 1995, 2000; Argote and Paul 2000).

KM is a new field especially in higher institutions of learning. Recently, researchers have expanded studies on knowledge management into the domain of higher education. Using knowledge management techniques and technologies in higher education is as vital as it is in the corporate sector. If done effectively it can lead to better decision-making capabilities, reduced product development cycle time (for example curriculum development and research), improved academic and administrative services, and reduced costs (Jillinda et al, 2000). Higher education in today's environment is subject to the same pressures as the marketplace. The high demand for knowledge and increased competition has pushed higher education institutions to think like business. The educational markets are becoming global as higher education institutions are attempting to internationalise their curricula and offer high-quality programmes to students regardless of location (Anand, 2003).

They are also facing higher competition for a share of student market both local and international, though this is not the case in Nigeria where students rather compete for entry into higher institutions as observed by Victor (2007), "The demand for entry into Nigerian universities is usually very high and competitive. With a population of about one hundred and forty million, there has been an increase in the demand for university education. At present, the total number of Nigerian universities both private and public is 91 with 1,096,312 students". Afemikhe (2008) noted "One major problem facing university system in Nigeria (and in fact all other higher institutions of learning) is that associated with selection and placement of students. Unfortunately, the number of applicants outweighs the number of available spaces".

According to Salim (1997), the general untidiness of this uncoordinated system of admissions, and the attendant problems had assumed new proportions with the establishment of new universities, polytechnics and colleges of education. Moreover, higher institutions have to adjust themselves and develop strategies to respond rapidly to the changes in technologies and increasing demands of stakeholders. In this new Millennium, knowledge is power and more knowledge is within individuals more than in records (Anand, 2003). An institution wide approach to knowledge management can lead to exponential improvements in sharing knowledge (Jillinda, et al, 2000).

In the context of educational institutions, sharing knowledge is paramount to the existence of an educational institution (Liao, 2004). Knowledge transfer is the primary key to effective teaching and learning in higher education. It contributes to guiding and improving students' professional development (Teresa et al, 2008).

Literature Review

Economic and social developments are increasingly driven by the advancement and application of Knowledge. But the potential of higher education systems in many developing countries to provide qualitative and effective knowledge to attain such developments are thwarted by long standing problems of finance, efficiency, equity, quality and governance. Efforts to expand enrollments and improve educational quality are severely constrained by growing shortages of qualified academic staff.

For example, between 1997 and 1999, the numbers of academic staff in the federal universities in Nigeria declined by 12% even as enrollments expanded by 13%. Long term brain drain in the face of rising enrollments, has left the federal university system with only 48% of its estimated staffing needs filled. Staffing scarcity is most acute in engineering, science and business disciplines. Shortfalls are estimated at 73% in engineering, 62% in medicine, 58% in administration, and 53% in sciences. In contrast, no staffing shortages exist in the disciplinary areas of arts and education (NUC2002 in William et al).

Adeyemi (2000) Reports on a study which evaluated enrollment trends with the available academic manpower in Nigerian universities. Findings indicated that projections of student enrollment expected to increase by 5 per cent annually, far outpace projected numbers of academic staff available. Ephraim (2004) found that Nigerian public institutions have high enrollments without enough qualified instructors. As a result, staff/student ratios have worsened to the detriment of student learning and academic research.

Feng et al, (2009) made the first attempt to introduce and acknowledge the unique role of an extensionist in the knowledge transfer processes in expert system application to Agriculture. This implies that the role of the extensionist in Knowledge transfer is a recent development and present an interesting direction for further research in other areas of knowledge transfer as in the case of higher education in Nigeria since the intermediary role of the extensionists really exist. As the demand for the intensive involvement of experts in KT increases in higher institutions of learning, coupled with the fact that we have insufficient number of such experts in the higher education sector, the role of the Knowledge extensionists in many of our higher institutions of learning remain relevant in order to bridge the gap created by this imbalance. Extending from knowledge transfer between sources and recipients, the study of Ko et al. (2005) shows that there are three knowledge factors: knowledge-related factors, motivation-related factors, and communication-related factors that influence the transfer of knowledge from source to recipient. In this study we adopt and extend the knowledge transfer theoretical model based on these researchers' studies, applying their concepts to the domain of higher education.

Objectives of the study

The aim of this study is to investigate selective cases where knowledge transfer took place between lecturers (both experts & extensionists) and students in order to identify the intermediary factors of extensionists for the KTHE model. To achieve this aim, we set up the following objectives:

1. To develop conceptual model of KTHE that incorporates knowledge extensionists, thereby improving the model to account for Nigeria's Higher Institutions.
2. To improve on the KTHE model developed by Ko et al., (2005) to accommodate the role of knowledge transfer Extensionsists.
3. To test the acceptability of knowledge factors, communication factors and motivation factor of intrinsic motivation as they affect KT.

Theoretical Background

Knowledge management is concerned with the entire process of discovering and creation of knowledge, dissemination of knowledge and the utilization of knowledge (Newman, in Koh, 2005). The discipline of KM has three major components (Bose, 2001):

- a. People: who create, share and use knowledge and who collectively comprise the organizational culture that nurtures and stimulates knowledge sharing.
- b. Processes: the methods to acquire, create, organize share and transfer knowledge.
- c. Technology: the mechanisms that store and provide access to data, information and knowledge created by people in various locations.

Knowledge Transfer

The process of knowledge transfer - or what some authors refer to as knowledge transformation, knowledge distribution, knowledge dissemination, knowledge sharing , knowledge conversions (Sveiby, 2001, Nonaka and Takeuchi, 1995) or “best-practice” (Szulanski, 2003) - is a very complex one. It is an interaction between knowledge receiver and provider. In the most common sense, it can be understood as the process of passing on knowledge from one unit (e.g. individual, group, department, division) to another. However, for the purpose of this research, the term has to be narrowed down. Within the scope of this study, knowledge transfer is perceived as “the process by which knowledge moves from a source to a recipient and is readily applied by the recipient”—that is, from a teacher to a student.

Knowledge Extensionist

The word “extension” is derived from an educational development in England during the 19th century, when Oxford University and Cambridge University attempted to serve the rapid expansion of educational needs of society. It was called “university extension”. In the early 20th century, the word extension was applied to describe the transfer of knowledge and technology to serve the needs of rural development by American land-grant universities (Jones & Garforth, 1997). The actors engaged in facilitating the knowledge extension were termed “extensionists”. In the early literature, the role of the extensionist was reported to transfer the knowledge and skills originally in a social network, but more recently has been adopted in the agricultural sector. According to Nagel, (1997), the name “extensionist” is drawn from previous literature on educational and agricultural extension, which defines the “extension” as the organized exchange of information and the purposive transfer of skills. This study therefore upheld the early literature meaning of the extensionist and therefore considers any person involved in transferring knowledge to students in any higher institution of learning without having the minimum requirement to teach such students. They are needed to act as intermediaries to bridge the gap of inadequate manpower in our higher institutions of learning.

Measuring Knowledge transfer in Higher education

Prior research considers measurement of knowledge transfer to be a useful approach in evaluating the effectiveness of teaching and learning performance (Alvarez et al., 2004; Simon and Soliman, 2003; Joshi et al., 2004; Steyn, 2004; Robson et al., 2003; Liao, 2004 in Teresa et al, 2008). These studies suggest that the dependant variable knowledge transfer in higher education can be influenced by three set of factors: knowledge, motivation, and communication factors.

Knowledge–Related Factors

1. Absorptive Capacity

Several studies on absorptive capacity (AC) (Cohen and Levithal, 1990; Nonaka, 1994; Szulanski, 1996; Nahapiet and Ghoshal, 1998; Bosch et al., 1999; Zahra and George, 2002; Ko et al., 2005) considered it as the ability to value, assimilate, and apply new knowledge. In education absorptive capacity is directly related to the student and it influences knowledge transfer (Alvarez et al, 2004).

2. Shared Understanding

Shared understanding (SU) is considered pivotal for the quality of interaction (Mulder et al., 2002; Yuen and Ma, 2004). It represents the extent to which the work values, norms, philosophy, problem-solving approaches, and prior work experience of a dyad are similar (Nelson and Coopriider, 1996; Ko et al., 2005). So the interaction between teacher and student is influenced by shared understanding between source and recipient.

3. Arduous Relationship

Prior studies have suggested that one important factor affecting the transfer of knowledge is the relationship between a source and a recipient (Argote, 1999). The relational context includes the nature and extent of communication between the source and the recipient and the extent of arduous relationship (AR) between the source and the recipient (Joshi, 2005).

Motivation–Related Factor

1. Intrinsic Motivation

In the empirical studies of Szulanski (1996) and Ko et al. (2005), motivation constitutes a set of factors identified as potentially influencing knowledge transfer. Motivation affects the amount of time and energy that people are willing to devote to learning. Humans are motivated to develop competence and to solve problems; they have, although extrinsic rewards and punishments clearly affect behaviour, people work hard for intrinsic reasons, as well, according to Joshi et al. (2005). The nature of student motivation is related to a student's desire to participate in the learning process.

Communication–Related Factors

In the knowledge transfer process, face-to-face communication is a crucial factor influencing the quality of knowledge transfer (Alavi and Leidner, 2001). The concern here is about the qualifications and the pedagogic skills of the higher education teacher. In contrast to primary and high school teachers, higher education teachers are not required to have been trained in or acquired skills in pedagogy.

1. Communication Encoding Competence

In the study of Ko et al. (2005), communication encoding competence (CE) is the ability to demonstrate the appropriate communication behavior to effectively achieve one's goals (Monge et al., in Teresa et al, 2008). Communication processes and information flows drive knowledge transfer in organizations (Alavi and Leidner, 2001). In higher education, then, the teacher's communication will affect the knowledge transfer process.

2. Source Credibility

In the knowledge transfer process, source credibility (SC) is the extent to which a recipient perceives a source to be trustworthy and an expert. In past knowledge transfer research, trust and reputation of a knowledge source collectively define a source's credibility (Ko et al., 2005; Joshi et al., 2005). Szulanski discovered that when a source is not perceived as trustworthy or reliable, the recipients are less motivated to internalize the knowledge that is communicated to them by the knowledge source. Recipients often use a source's reputation for the purposes of knowledge valuing (Szulanski, 1996; Ko et al., 2005; Joshi et al., 2005). In education, the teacher's credibility not only affects knowledge transfer, but also affects the attitude and the relationship between teacher and student.

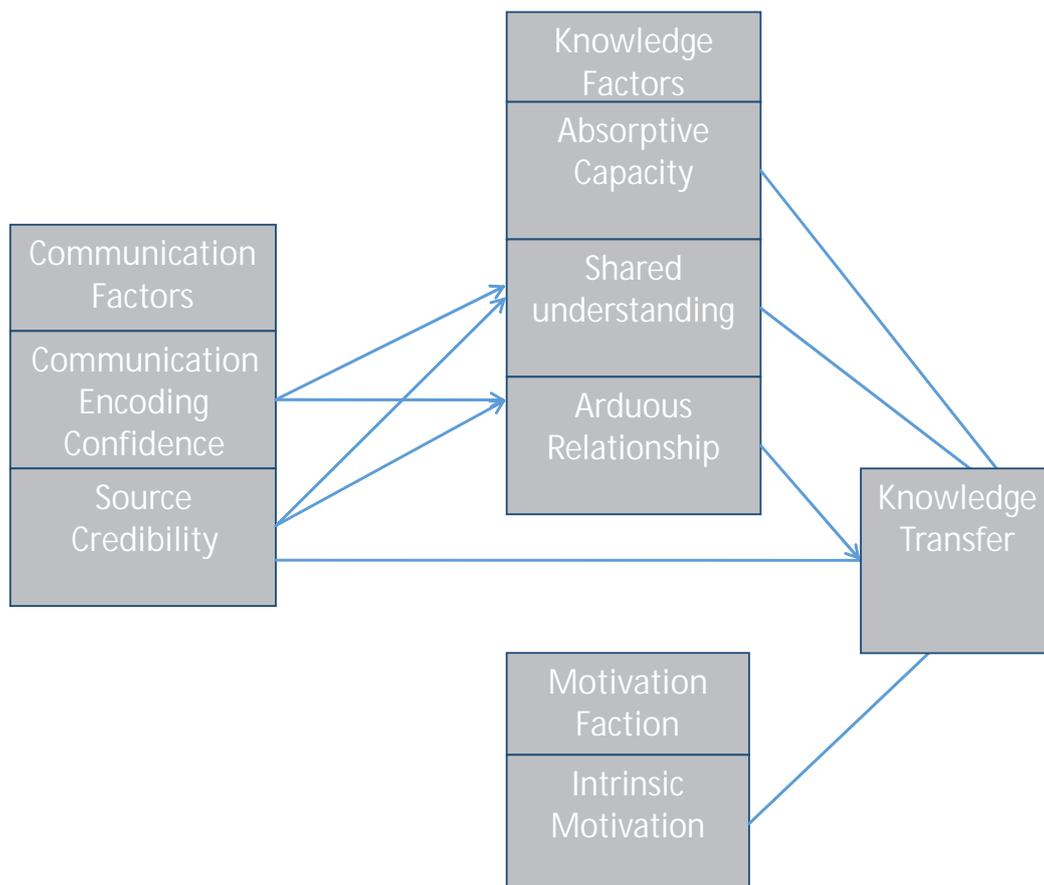


Figure1: Knowledge transfer in Higher Education -KTHE model.
 Adopted from Teresa et al, 2008

Accordingly, the following relationships were found to exist between the various factors from these studies:

1. The greater the absorptive capacity of the student, the greater the knowledge transferred.
2. The greater the shared understanding between a teacher and a student, the greater the knowledge transferred.
3. The more arduous the relationship between a teacher and a student, the lower the knowledge transfer.
4. The more intrinsically motivated the student, the greater the knowledge transfer.
5. The greater the teacher's communication encoding competence, the greater the shared understanding between teachers and students.
6. The greater the teacher's communication encoding competence, the less arduous the relationship between teachers and students.
7. The more credible the teacher, the greater the shared understanding between teachers and students.
8. The more credible the teacher, the less arduous the relationship between teacher and student.
9. The more credible the teacher, the greater the knowledge transfer.

The Study Area

Waziri Umaru Federal Polytechnic Birnin-Kebbi in Kebbi state North West of Nigeria was used as the study area. The institution consists of the following four colleges:

- (a) College of Administration
- (b) College of Engineering
- (c) College of Environmental Studies
- (d) College of Science and Technology with about thirty Academic departments

Materials and Methods

Primary data was collected by administering structured questionnaire to lecturers in order to evaluate their views on the already established relationships on knowledge, communication and motivation related factors in the KTHE model.

Also, personal interview was conducted on some staff to supplement information obtained from the questionnaire. The use of multiple sources such as interview and questionnaire give the opportunity to obtain multiple measures on the same phenomenon, which in turn add to the validity of any scientific research.

A total of 80 questionnaires were administered to the respondents (20 to each of the 4 colleges) out of which 63 were completed and returned giving a return rate of 78.8%.

Statistical Analysis

Based on the research problem identified and the objectives of the study, the primary data that was collected through the administered questionnaire was analyzed using the "New Environmental Paradigm" (NEP) method developed by Dunlap and Liere (1978).

In eliciting preferences, the respondents were presented with statements about the factors affecting knowledge transfer and the relationships observed from previous studies. For each statement, the respondents were asked to indicate the extent to which he/she agrees or disagrees (use of likert). The level of acceptability was then determined based on responses to all the statements (representing the number of relationships between the factors). Following Dunlap et al., statements were coded from 5 to 1, where “5” indicates strongly agree, “4” indicates mildly agree, “3” indicates unsure, “2” indicates mildly disagree, and “1” indicates strongly disagree. The lecturer’s acceptability levels were based on the mean response value. Thus, the resulting values of the acceptability level fall between 1 and 5. A value close to one indicates that the respondent has a low acceptability level. A value close to 5 indicates that the respondent has high acceptability level to the factors and their established relationships.

Analysis and Results

The tables below show the results obtained from the questionnaire administered to the respondents with respect to certain characteristics:

Table 1: Distribution of sex of respondents by qualification

Sex	Qualification				
	NCE/HND	B.Sc	PGD	Msc	PhD
Male	7	18	5	23	2
Female	2	3	1	2	1

There were 85.9% male respondents. The dominant qualification among the male lecturers was M.Sc degree with 41.82% while for the females it was B.Sc with 33.33% of the respondents.

Table 2: Age Distribution of respondents by Sex

Sex	Age					
	20 -24	25 -29	30 -34	35 -39	40 -44	45 & Above
Male	-	2	7	10	11	25
Female	-	1	2	1	3	2
Total	-	3	9	11	14	27

The highest concentration of male lecturers in this research was in the age group 45 and above while the female ones were dominant in the 30-34 age groups.

Table3: Distribution of Respondents with Respect to Number of years in service
Number of Years in Service

Sex	1-5	6-10	11 -15	16 -20	21 & Above
Male	4	7	9	14	21
Female	1	-	4	1	3
Total	5	7	13	15	24

With respect to the number of years spent in service, the highest figure for the male lecturers included in the study was 21 years and above while it was 11-15 years for the female lecturers and were spread across the four colleges in the institution with different areas of specialization.

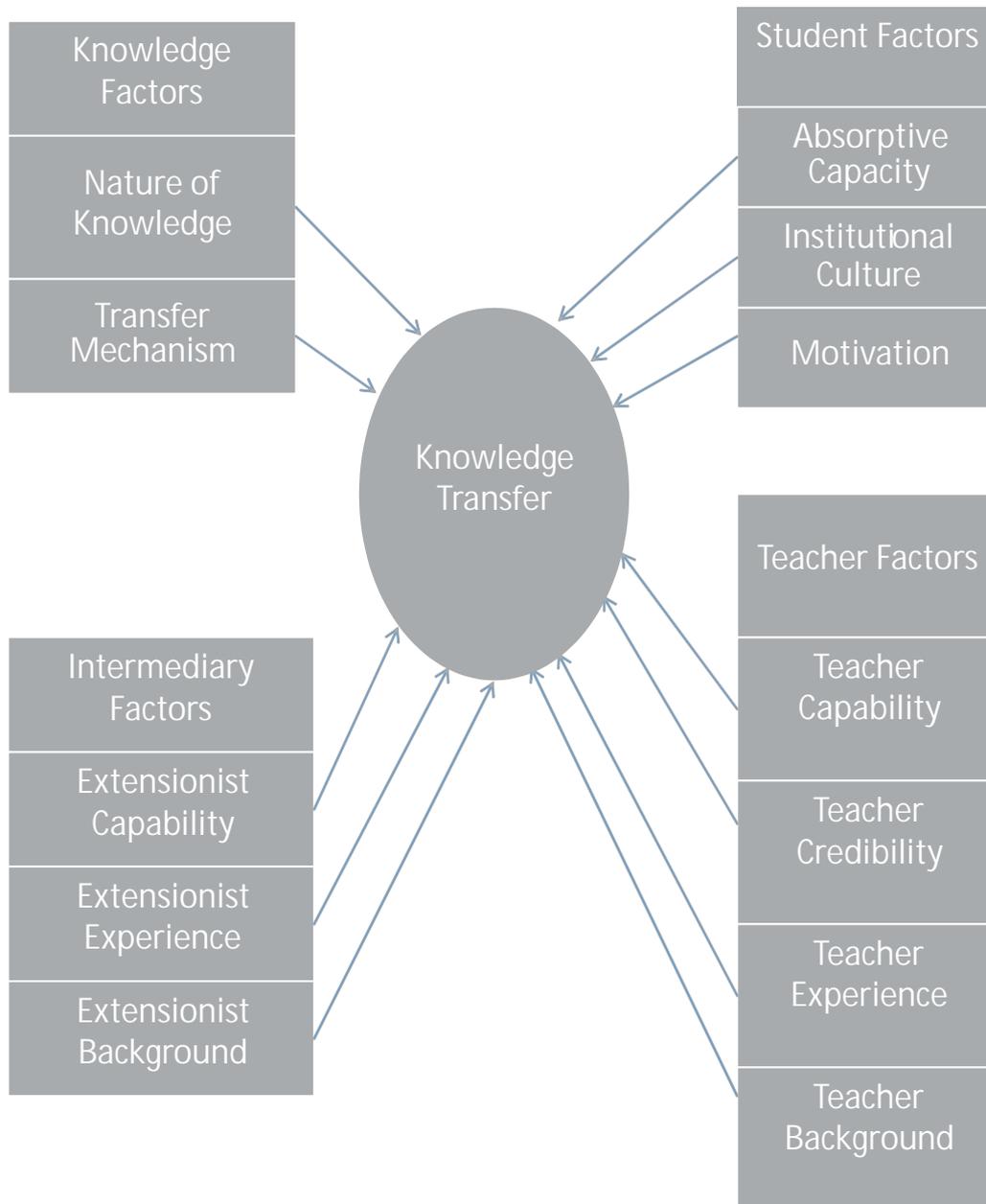


Figure 2: Conceptual Model of KTHE in Nigeria incorporating Intermediary Factors of Knowledge Extensionists.

Based on the above model, the following relationships were established with respect to the intermediary factors:

1. The more capable the extensionist, the greater the knowledge transferred
2. The more experienced the extensionist, the greater the knowledge transferred.
3. The more relevant the background of the extensionist, the greater the knowledge transferred.

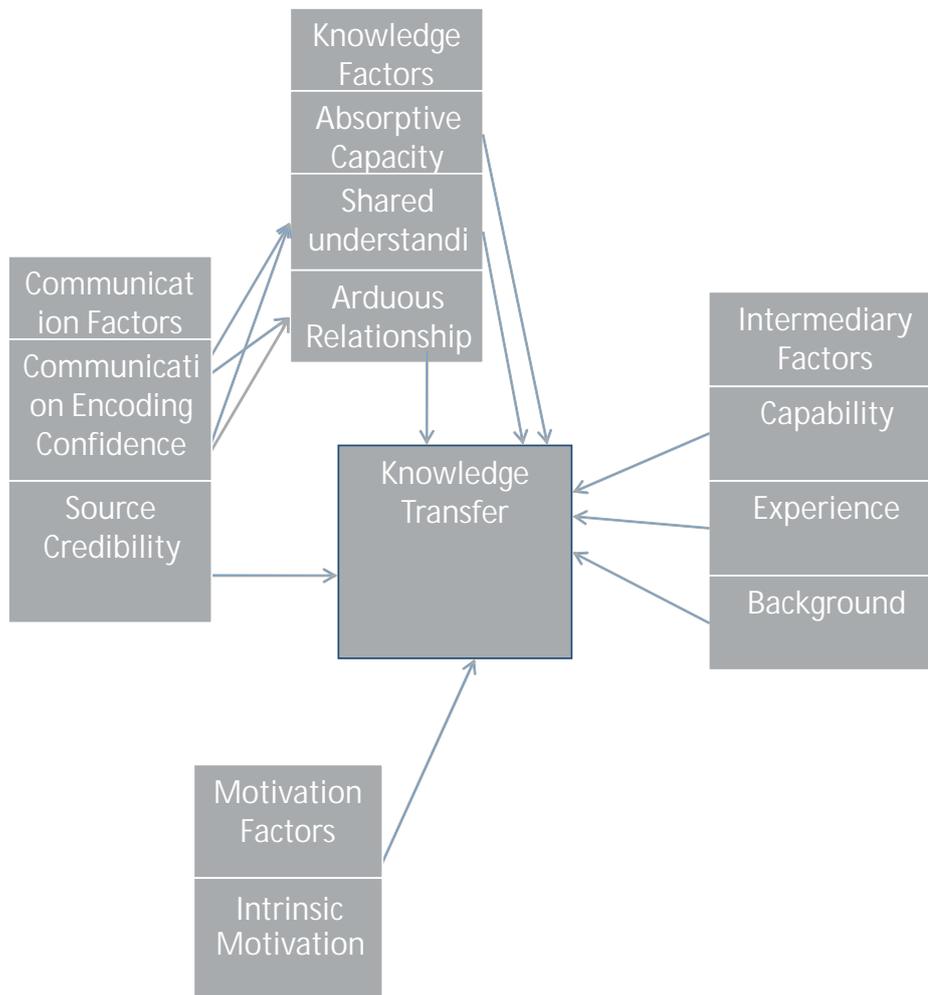


Figure 3: The improved KTHE model incorporating the Intermediary factors of the knowledge extensionists

Conclusion

In the light of findings in this study, it can be concluded that the role of the knowledge extensionists really exist in our higher institutions of learning and is very relevant in order to bridge the gap created by inadequate and in efficient manpower in most areas of study.

Recommendations

In the light of our findings, the following recommendations are made:

1. The field of knowledge management should be introduced in our higher institutions of learning to create awareness on the importance of knowledge and ways to acquire, recognize, capture, retrieve, use, measure and manage knowledge.
2. In order to be able to generalize the findings of this study for the whole country, further research should be conducted involving multiple higher institutions of learning. Such continued research can improve the knowledge transfer process of educational systems as well as contribute to social knowledge development.

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