



SUMMARY

USING TRANSACTIVE MEMORY SYSTEMS TO SELECT AND STUDY A STRATEGY FOR INSTITUTIONAL KNOWLEDGE RETENTION

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Theoretical background

Over the past decade, organisations have had to incorporate major (technological) innovations which drive the need for versatile and rapid changes in workflow. In response to these changes, employees with expert skills and knowledge are becoming more important assets and this adds considerable market value to those employees. These employees are therefore more inclined to change jobs. Consequently, organisations can benefit from implementing a knowledge retention strategy to keep the specific knowledge and skills of employees up to date, and above all, on board.

In an ideal situation, there would be a proactive and smooth transition of knowledge and skills between departing employees and those who would take on their responsibilities. With this type of transition, the knowledge voids typically experienced by organisational change could be reduced. However, without a proactive and smooth transition, loss of expertise as a result of an employees' departure, due to, for example; retirement, resignation or market competition; may have a negative impact on an organisation as a whole. There are two reasons for this negative impact on an organisation. The first reason is that significant knowledge voids in the domains of productivity, decision-making and innovation will occur. The second reason is that colleagues' and associates' interpersonal routines will be disrupted and the future development of knowledge and skills as created by social interaction and day-to-day business will be inhibited.

Many organisations do not acknowledge the negative organisational impact of knowledge attrition, despite the overwhelming evidence. As a consequence, organisations are not proactive in knowledge retention as it is not considered to be a priority. Knowledge retention can even be regarded to as one of the most critical challenges for organisations. It is therefore imperative that organisations recognize which knowledge areas are critical for continued operations and how to prevent its loss. To accomplish this, it is important to determine whether employees are aware of the knowledge and skills available to them through their colleagues, and the extent to which each uses this for their job function. When these available resources are not known, knowledge voids will persist.

The extent to which a TMS is present in an organisation, can confirm the employees' awareness of the types of knowledge and skills available and whether these are being used. Once the presence of a TMS is noted, and depending on the organisations willingness to support change, knowledge retention strategies could be suggested. In order to select such

strategies, a tool for evaluating existing knowledge retention strategies, with regard to suitability within an organisation and the presence of a TMS, is required. It could be stated that organisations could benefit from implementing a knowledge retention strategy that is carefully selected, based on the presence of TMSs.

Purpose

The present study focused on selecting a knowledge retention strategy by exploring the presence of TMSs, as well as essential types of knowledge and skills. Furthermore, knowledge related problems that were expected to arise, or not, were analysed, when an employee would leave the organisation.

The study was conducted in two phases. The first phase aimed to gain insight into the presence of TMSs within an organisation, the types of knowledge and skills that are crucial to retain and knowledge related problems that are expected to arise, or not, when an employee would leave the organisation. The second phase aimed to select a suitable knowledge retention strategy for the participating organisation. Specifically, the research questions for Phase 1 and 2 were as follows:

Phase 1: perception of the employees

1. Are TMSs present within the organisation and if so, in what capacity?
2. What type(s) of knowledge and/or skill is essential for an employee's performance of their job functions?
3. What knowledge related problems do employees expect to arise, or not, when a colleague would leave the organisation?

Phase 2: selecting a knowledge retention strategy

4. What knowledge retention strategy could be applied within the current state of the organisation and how would this strategy be perceived among the employees?

Method

Prior to conducting this study, there was no use of a formally embedded knowledge retention strategy within the organisation. Team continuity is important in order to establish the presence of TMSs over time. However, at the time of conducting this study within the participating organisation, team continuity was not a possibility. Therefore, the research design that was applied for this study is cross-sectional. To explore the perception of the employees, a mixed-method approach was used. This consisted of a questionnaire within phase 1 and a focus group study within phase 2. Prior to conducting the questionnaire and the focus group discussion, the participants were requested to sign an informed consent document.

Phase 1. The participants were conveniently selected and a total of 50 hardcopy questionnaires were handed out. The response rate of the questionnaire was 88% (44 out of 50). The questionnaire consisted of quantitative and qualitative aspects. The first part of the questionnaire focused on presence of TMSs and included the scale of Lewis (2003). The second part of the questionnaire included closed- and open-ended questions. The questions were adapted in consultation with the organisation to confirm applicability with the organisation's structure. Therefore, this part of the questionnaire was used to provide an indication of the perception of the employees on knowledge retention, the essential types of knowledge and/or skills, and knowledge related problems.

The retrieved quantitative data was analysed by descriptive analysis using SPSS Statistics. The qualitative part of the questionnaire consisted of seven open-ended questions. The results were transcribed using Atlas.ti. Since there was no suitable coding scheme available, coding schemes were developed based on literature research. Each code within the coding schemes includes a description in order to clarify the meaning of these codes. Thereby, examples from the questionnaire were added. Analysis of the results resulted in small alterations, for example; the code "other" was added in all coding schemes.

In order to ensure the reliability of coding during the analysis of the retrieved qualitative data, inter-rater reliability was established. In order to determine this, 10% of the items were coded by another student within the field. This resulted in an inter-rater reliability of 96.30% which could be described as nearly perfect.

Reliability of the questionnaire as designed by Lewis (2003), was measured by determining Cronbach's Alpha for each subscale. All subscales included five items. However, in order to be able to determine Cronbach's Alpha items 9, 10, 13 and 15 were contrary to the other items negatively formulated. Therefore, these items were recoded. The specialization subscale ($\alpha = .81$) and the coordination subscale ($\alpha = .85$) were indicated as reliable. The Cronbach's Alpha of the credibility subscale appeared to be .64 which can be classified as questionable in order to ensure reliability. However, since the questionnaire is previously tested for reliability and the sample size within the present study is relatively small ($N = 44$), the item was not deleted from the questionnaire.

The questionnaire was conducted on an individual level. According to the literature, a TMS is a combination of individual memory systems. This suggests that the results should be reviewed on a combined/group level in order to determine its presence. Therefore, the average of the within-group agreement coefficients (r_{wg}) was calculated in order to justify aggregation of the results into a score for each subscale on a combined/group level. Within-group agreement coefficients above .70 or greater are considered to be sufficient evidence of acceptable agreement among the participants' responses. The average r_{wg} of the subscales appeared to be .81, with 53,33% of the estimates falling above the .70 cut-off line. These

results verify the participants' responses to be sufficiently similar. Reviewing the results on a combined/group level is therefore statistically justified. Subsequently, a score for each TMS subscale was retrieved by averaging the participants' responses. These scores reflect the extent to which the subscales are developed according to the participants' perceptions.

For the analysis of the open-ended questions, coding schemes were composed. As a result, the coding schemes contained for example: the three components of a TMS (specialization, credibility and coordination) and various obstacles in relation to knowledge retention (lack of sharing knowledge, communication, competence-based trust, motivation, (senior)management support, time and cost).

Phase 2. The second phase of this study concerned selecting a suitable strategy for effective knowledge retention. This phase focused on how the selected strategies were perceived among the employees. Participants for the focus group were recruited from the pool of employees that participated in the questionnaire. Within the organisation, it was not possible to conduct more than a single focus group study, with more than three participants. Two of the participants were female (66.66%) and one was male (33.33%). The focus group participants were acquainted, had worked together in the past and were from the same organisation. Therefore, the focus group sample contained homogeneous aspects. However, participants that were recruited did have different roles within the organisation which allowed for sufficient contrast in opinions.

In order to provide a selection of strategies, a list of criteria was composed. This provided a selection of three strategies that were presented within the focus group. The main goal of the focus group study was to answer the question: "What strategy do you consider as the most suitable for the organisation?". The questions that were presented within the focus groups, were inspired by the research of McKenney and Reeves (2012) and the composed list of criteria. The questions that were asked complemented the list of criteria as they discussed advantages and disadvantages of the strategies and its activities. It was also discussed whether the essential types of knowledge could be retained and what preconditions were applicable to the organisation, in order for the strategies to succeed. The qualitative data of this study existed of audio recorded data. The data was transcribed as it related to the questions asked. Conclusions from the transcribed data were drawn per person per question.

Findings/conclusions

Presence of TMS. The first research question aimed to study the presence of TMSs within the organisation and the extent to which the TMSs were present, or not. The results demonstrated that functioning TMSs were present within the organisation where credibility scored highest and coordination lowest. This implies that the present TMSs may be

inefficient and the participants' perception towards cooperation within their team could be questioned. Interestingly, the results also revealed obstacles in relation to knowledge retention and TMSs. The obstacles that were mentioned in relation to TMSs were competence-based trust and lack of knowledge sharing. The presence of these obstacles seem to contradict the presence of TMSs within the organisation. There is also a possibility these obstacles could prohibit the optimal retention of knowledge as well as improvement upon the existing TMSs.

Essential types of knowledge and/or skills. The second research question was: "What type(s) of knowledge and/or skill is essential for an employee's performance of their job functions?". Analysis of the results displayed that a vast majority of the participants would consider domain knowledge as the most essential type of knowledge within the organisation. This was also considered the type of knowledge that is at risk of causing organisational impact.

Knowledge related problems. The third research question was: "What knowledge related problems do employees expect to arise, or not, when a colleague would leave the organisation?". Results showed that according to the participants, knowledge retention at this particular organisation could be considered to be inadequate. Nevertheless, the participants did recognize that knowledge retention is something the organisation could benefit from. Interestingly, the majority of the participants did not expect the organisation to encounter problems when/if they would leave the organisation. This seems to contradict the previous mentioned results. However, it was expected that, based on the lack of knowledge retention, projects and/or tasks would not be executed as efficiently and qualities such as creativity would be missed.

Selecting a knowledge retention strategy. The research question of phase two aimed to select a knowledge retention strategy that could be applied within the participating organisation. The results derived from the focus group study indicated a clear and unanimous preference for the communities of practice knowledge retention strategy. In general, each strategy had its advantages and disadvantages, concerns/missing aspects and obstacles (preconditions or barriers) in relation to knowledge retention. One of the biggest advantages of the COP knowledge retention strategy that were mentioned, was the clarity of the strategy and the opportunity for continuous knowledge retention throughout the entire tenure of an employee. However, guidelines on formality should be set and there were some concerns regarding sustainability and employee turnover. It was also mentioned that a good use of the communities of practice knowledge retention strategy would likely save the organisation time and money in the long-run.

The remaining two strategies were not selected for a number of reasons. One of the strategies did not provide the opportunity for continuous knowledge retention which was

considered a huge disadvantage. As there is limited time before an employee departs, the retention of knowledge becomes a hasty decision and a considerable loss of knowledge would occur when applying this strategy. The other was perceived as too abstract and practical guidelines in order to apply this strategy were missing. As a result, the focus group questioned whether this strategy could be actively applied and sustainability could be ensured.

Discussion/recommendations

Presence of TMS. The presence of TMSs indicate awareness among employees of their colleagues' knowledge and skills. It also indicates that the creation of future knowledge can be facilitated and knowledge voids can be recognized and mitigated. The efficiency of the TMSs, however, did provide room for improvement as coordination scored lowest. For that reason, setting up and creating sustainability for an effective use of the COP knowledge retention strategy may be challenging for the participating organisation.

The obstacles that were discovered regarding TMS, include lack of competence-based trust and the absence of knowledge sharing. Since these obstacles were results from open-ended questions and only 40.91% of the participants provided an explanation, it is possible that bias may have occurred and participants have exaggerated or minimized possible issues. Answers could have been influenced by the participant's feelings at the time of conducting the questionnaire. The open-ended questions were, however, selected from an existing questionnaire and participants signed an informed consent document prior to conducting the questionnaire ensuring anonymity. The questionnaires were anonymously self-completed and could be handed in at a specific location without the researcher present. Therefore, the chance of bias to occur may have been reduced. Therefore, the existence of these obstacles should be further looked into, since this could inhibit the presence or further development of the required components of TMSs and the ability to retain knowledge

Essential types of knowledge and/or skills. According to the retrieved results, the essential type of knowledge for the employees' functioning is domain knowledge. The type of knowledge that has a potential risk of causing organisational impact is also considered to be domain knowledge. Research shows that if there is a shortage of specific domain knowledge and skills for a certain job function, employees may experience an immediate negative impact. Considering domain knowledge as an essential type of knowledge would therefore be justifiable. During the literature research, it was found that procedural- and sociocultural knowledge could lead to substantial changes within current structures of an organisation due to the departure of an employee. Studies show that when these types of knowledge are lost, it may lead to a decrease in the employees' problem-solving and decision-making skills, as well as general performance on a more long-term basis. Consequently, the impact of this

type of knowledge loss would be less noticeable for the employees directly after a departure. Therefore, it could be that the importance of the retention of these types of knowledge would be easily overlooked. This would be in line with the fact that knowledge retention, at the moment of conducting this study, was not an area of interest within the organisation. Another explanation could be that the employees are not aware of the types of knowledge are used when performing their job function.

Knowledge related problems. The literature research displays that the employees within an organisation need to recognize and acknowledge the possible loss of knowledge prior to the departure of an employee. Based on the results, it could be stated that within the organisation, issues that might arise due to the departure of the employee are generally not acknowledged prior to the departure. For that reason, knowledge retention could be regarded to as a critical challenge for the participating organisation.

The obstacles that were revealed in relation to knowledge retention for the preparation of phase two were (senior)management support, knowledge sharing and time. Senior management support is considered an essential aspect, in the light of recognizing knowledge retention as a critical challenge within the organisation. Senior management could also be held responsible for creating a knowledge sharing culture, and the facilitation of knowledge retention. An example to illustrate this facilitation would be providing the employees with a sufficient amount of time for the retention of knowledge.

As mentioned earlier, the study of Baguma et al. (2014) states that when knowledge retention has no priority, this could cause a lack of knowledge sharing in an organisation. An obstacle that was mentioned regarding TMSs, was lack of competence-based trust. Increasing competence-based trust among employees can aid the organisation in creating a knowledge sharin culture. This could also stimulate the development of the components of TMSs. In order to do so, knowledge retention needs to be recognized as an area of interest within the participating organisation.

Selecting a knowledge retention strategy. The composed list of criteria could potentially aid organisations in choosing a suitable knowledge retention strategy. The preconditions that were revealed were taken into account, as well as the presence of TMSs. The focus group study displayed a unanimous preference for continuous knowledge retention and the communities of practice strategy. This preference for continuous knowledge retention was to be expected, since employee departure can often be unpredictable. Therefore, the retention of knowledge should be integrated within daily activities from day one. The preferred communities of practice knowledge retention strategy is based on the theory of Lave and Wenger (Hargreaves & Gijbels, 2011), and developed as a knowledge retention strategy according to the research of Liebowitz (2009).

Practical implications. Creating awareness on the subject of knowledge retention and the impact of knowledge attrition, could be a first step towards achieving knowledge retention. To identify essential types of knowledge, awareness of the types of knowledge and skills employees use for completing tasks should be confirmed. If this is not the case, certain knowledge areas could be overlooked. Within this study, obstacles were revealed and a list of criteria, that could be applied to existing knowledge retention strategies, was composed. The insights that were retrieved, as well as the composed list of criteria, may be useful for organisations that wish to implement a knowledge retention strategy. For example, becoming aware of the obstacles, that can apply to TMSs and knowledge retention, could aid an organisation in understanding which obstacles need to be overcome in order to achieve knowledge retention and the presence of efficient TMSs.

An aspect that was also considered of importance regarding the COP knowledge retention strategy and TMSs, is team continuity. Since this was not a possibility at the time of conducting this study, the organisation could benefit from implementing the COP knowledge retention strategy when this would be possible. When a knowledge retention strategy is already implemented within an organisation, but the retention of knowledge is still not achieved, these insights could also be useful. Analysing the presence of TMSs, establishing the essential types of knowledge and knowledge related problems, may not always be easily accomplished within any organisation. Still, the present study might ensure organisations that this will be able to provide meaningful insights regarding knowledge retention.