Tacit Knowledge Capacity: A Comparison of University Lecturers in Germany and North Cyprus

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Abstract: The importance of universities as knowledge hubs is increasing due to knowledge production via research and teaching. An emerging aspect of knowledge management literature is the study of the knowledge requirements of universities. In particular, the transformation from knowledge creation to knowledge sharing has proved to be important in the university context and is subject to cultural differences. For example, previous research has indicated that a physician's Tacit Knowledge Capacity (TKC) is affected by social software and social media. This creates opportunities to carry out new research on different occupations that have an intense TKC.

As part of this research, a survey was conducted in order to assess the TKC of lecturers in both Germany and North Cyprus. These are two countries that have universities providing knowledge management programmes. The research determined the TKC in both countries and compared the two in order to determine if cultural factors affect the TKC of the profession. Through this research, the authors aimed to contribute to the ongoing research on the knowledge requirements of universities that will enable them to be knowledge intensive institutions. The Faculty of Economics and Administrative Sciences at Near East University, which has 2200 students and 20 chairs, was compared with the Faculty of Business and Economics at the Technische Universität Dresden, which has 2800 students and 23 chairs. The study was carried out to provide an intercultural comparison, which is currently lacking in the Knowledge Management field. The research findings have highlighted the factors influencing the transfer and the accumulation of tacit knowledge.

Keywords: Tacit Knowledge, Knowledge Accumulation, Knowledge Transfer, Tacit Knowledge Capacity, Higher Education, Universities

1. Introduction

Polanyi (1966) argued that we can know more than we can tell, and Hayek (1952) focused on how our mind generates this tacit knowledge. Even though the relation between these scholars and their thoughts have been subject to multiple scientific discussions in the recent years, Scheall (2016) concludes that "it is possible for an individual to possess an item of knowledge without explicitly knowing that they possess this knowledge, and, thus, without being able to state, perhaps even in principle, how they came by this knowledge" (p. 207). Tacit knowledge as opposed to explicit knowledge is embedded within an individual's cognitive framework (Dalkir, 2011) and is the starting point of the market interactions of individuals, which generates market quasi-knowledge (Butos, 2003). Knowledge relevant for the market is considered as quasi-knowledge rather than knowledge because of the non-predictable character of knowledge in the non-conscious, non-teleological way the market evolves (Butos, 2003; Koppl, 2003).

Recent findings of neuroscience (Erkut, 2016a; Srivastava and Sharma, 2017; Erkut et al., 2018) point out to the fact that perception is actually a classification of the world according to the categories in our mind, which is organised based on hierarchical networks shaping four future perceptions. Furthermore, transactions within the cortex are occurring spontaneously; they are incomplete in their nature and self-organised (Fuster, 2011; Erkut et al., 2018). These all point out to the fact that the subjectivity of knowledge is indeed not a philosophical metaphor, but rather the result of the interaction processes in the cortex of human mind. Hence, for organisations focusing on the generation of knowledge, it is certain that the process of generating and organising knowledge cannot occur in a top-down, centrally planned way but has to be bottom-up (Erkut, 2016b) and based on the individuals that constitute the organisation. The challenge for the managerial level in such knowledge-intensive organisations is therefore to create the conditions of the emergence of knowledge; these can be factors that can accelerate either the accumulation of knowledge or its transfer (Kaya and Sagsan, 2015; Kaya and Erkut, 2017).

Since the process of generating knowledge on the organisational level is primarily self-organised, it cannot be planned in advance but rather need to be utilised for an efficient knowledge management (KM) procedure. The unanticipated character of new knowledge is described by Kirzner (1997) as sheer knowledge, i.e. a person cannot know what he cannot know. This is the same for the management level. Taken a university as an example, the university administration cannot anticipate what will be discovered in a certain research project. It can be anticipated that there will be some results (positive or negative), meaning that the character of discovery can be anticipated; but not the exact discovery itself. Hence, it cannot be planned. This distinction is known in the literature as the distinction between genotypic and phenotypic changes in the economy, where the former cannot be predicted, and the latter has a predictable character (Lehmann-Waffenschmidt, 1990). Since the generation of novelties such as a discovery builds upon the knowledge basis of employees in a university setup, managing their knowledge can be a key factor for the acceleration of the discovery and the use of new knowledge.

KM procedures enable accessing, using, generating, transferring and embedding knowledge (Nonaka et al, 2000; Mellor, 2011). As knowledge hubs, universities generate knowledge "through teaching and research, and attract knowledge by investing in new staff, staff mobility, and staff scientific networks" (Martinez-Fernandez and Sharpe, 2008, p. 49). They therefore have specific knowledge requirements (Harvey, 2008) which may differ from other sectors. As a contrast, financial sector can be taken as an example (Sarigianni et al, 2016; Kaya and Erkut, 2017): A financial sector organisation's knowledge requirements are like a two-edged sword, on the one hand the flow of tacit knowledge within that organisation is vital for its service-dominated character; on the other hand, the organisation also needs to ensure that tacit knowledge does not leave the boundaries of the organisation, leading to a loss of competitive advantage based on discretion.

Nevertheless, knowledge requirements are not only university-specific, but also can reflect cross-cultural differences in their nature (Howell and Annansingh, 2013). These cross-cultural differences are especially visible in the social media use in different cultures, which emerged in the recent years. With this in mind, this research aims to assess the Tacit Knowledge Capacity (TKC) of faculty members in Germany and North Cyprus as well as to determine the role of cultural context and its influence on the TKC of the profession of academic work. A comparison based on both the respective organisations and countries will contribute to the literature on tacit knowledge sharing in different organisational cultures (Suppiah and Sandhu, 2011).

2. Literature review

Davenport (1994) perceived KM as a process to capture, distribute and use knowledge effectively. For effective KM, both tacit and explicit forms of knowledge are relevant, although tacit knowledge is considered as difficult to explain as it takes place on an individual's cognitive level (Kaya and Sagsan, 2015; Erkut, 2016a). To be more precise, "tacit knowledge is deeply rooted in actions, procedures, routines, commitments, ideals, values and emotions" (Nonaka et al, 2000, p.7) and cannot be observed directly. In an economic context, the competition is observed on the level of artefacts that are known to the market, but these only reflect the codified, processed and transformed forms of tacit knowledge that are only made available with the entrepreneurial input of the initiator(s) based on imagination and leadership (Witt, 1998; Erkut, 2016a). Even though the authors refer to imaginations as an entrepreneurial input, the same logic also applies for universities, since their knowledge bases are individuals and processes (Chugh, 2013). The inputs of scientists have an economic value too; this can be reflected in the third party funded projects they realise, the incentives they receive for a discovery, the ranking results which influence their reputation and market value, and also their collaborative projects with an added value to the society, firms, or individuals. These are all based on the inputs of scientists, where they create knowledge in the same sense as the Hayekian entrepreneur who searches, experiments and finally discovers new knowledge by means of his actions but not of his plans (Ebner, 2005). In order to encourage and accelerate these processes leading to the discovery of new scientific knowledge, universities have potential for both the transfer and the accumulation of knowledge, and they can make use of KM tools to support both of the transfer and the accumulation of tacit knowledge (Martinez-Fernandez and Sharpe, 2008).

2.1 Tacit Knowledge Transfer

Tacit knowledge is hard to transfer because it is very subjective and its procession does not follow a logical manner (Iskanius and Pohjola, 2016). Sensory impulses or sensations are processed in human cortex by means of rules and routines, which emerge in form of hierarchical networks characterised as memory, and shaping the perception (Hayek, 1952; Butos, 2003; Fuster, 2011). Once individual-tacit knowledge is generated, its

transfer is possible through the capabilities of an individual, as described above in terms of the so called entrepreneurial input in the broader sense of Witt (1998) and Ebner (2005). Scientific knowledge and its generation involves the presumption that every scientist has an advantage that is associated with his personal, subjective, tacit knowledge that he can utilise to create an added value to the economy. It is the scientific knowledge that brings a civilisation forward (Ebner, 2005) by gradually changing the economy and the institutional setup. Nevertheless, until it comes to the observation of a certain scientific discovery as an artefact (Erkut, 2016a), it has to be communicated or transferred from the mind of the scientist to the rest of the world. At this point, social media can serve as a medium for enabling and accelerating this transfer. Hence, tacit knowledge transfer (TKT) can be triggered by the use of information and communication technologies (ICT) (Hildrum, 2009; Lopez-Nicolas and Soto-Acosta, 2010). Recent findings point out to the empirical observation that technology alone is not the only relevant factor, since human and social factors are considered to be the most important aspects (Kaya and Sagsan, 2016; Panahi et al, 2016). Furthermore, whether tacit knowledge will be transferred into explicit knowledge depends on the "culture and organisational structure" in universities (Karnani, 2013, p. 237). Social networks, mutual trust and tacit knowledge sharing channels such as document management and expert systems are all associated with TKT (Yang, 2014).

Universities have an "implicit knowledge sharing culture" (Fullwood et al, 2013, p. 130) where the perceived advantages of knowledge sharing are reputation, reward possibilities and networking (Stenius et al, 2016). The transformation from tacit to explicit knowledge in universities is based on shared knowledge in meetings, on documented knowledge that is perceived by other individuals through reading (Bassi, 1997 and Martensson, 2000), or the use of social media, where the latter is considered as complementary rather than a substitute to the former two (Panahi et al, 2016). Recent studies have shown the lubricant characteristics of social media, enabling knowledge transfer and reducing ambiguities resulting from knowledge stickiness that can be caused by weak interpersonal relationships or sheer ignorance (Leonardi and Meyer, 2015).

2.2 Tacit Knowledge Accumulation

Certainly, the generation of tacit knowledge is associated with the perception of objectively available information in a system (a notion corresponding to the pre-step of knowledge generation, called the *nano* dimension by Erkut, 2016a) and how information is processed in human cortex to generate new knowledge. Information can be tacit knowledge generated by others, e.g. other members of an organisation. As pointed out by Ebner (2005), the generation of new scientific knowledge in the Hayekian-evolutionary perspective depends on both luck and systematic efforts for research, where a new idea does not fall from the sky but is a combination of different factors based on the available subjective knowledge. Hence, the individual needs to acquire and accumulate tacit knowledge in order to continue his systematic efforts for search and discovery of the unknown. This process of accumulation necessarily involves different sorts of contact of the individual with his external environment, for example with other members of the same organisation. If there is no trust between the members, or no social structure keeping them together, such as a common cognitive interpretation of the conception of their research, and the network giving them a common identity, the accumulation cannot occur since the individual cannot receive and process tacit knowledge from his environment.

Hence, tacit knowledge accumulation (TKA) depends on an organisation's social networks and the level of trust among members of the organisation (Smedlund, 2008). The ability to accumulate tacit knowledge in an organisational setting consists of three components (Yang, 2014): establishing an external knowledge alliance, recognising tacit knowledge and coding that tacit knowledge. These processes consist of both transferring external and converting internal tacit knowledge (Yang 2014). Aside from the organisational setting, the role of mutual trust enables better interaction for TKA if a suitable space such as social media is provided (Panahi et al, 2016). This combines both aspects of socialisation and dialogue that are necessary for TKA (Nonaka et al, 2000; Souoto, 2015). Therefore, social media is a lubricant not only for TKT but also for TKA.

2.3 Cognitive Dynamics of Tacit Knowledge Capacity

Based on Hayek (1952), Butos (2003) and Fuster (2011), an evolutionary economic framework by Erkut (2016a) focuses on how new knowledge is generated and in turn shaping markets. Within this framework, the starting point of the model is the perceptions (nano dimension) – any experience an individual has is a sensation in an ever evolving cerebral cortex (Fuster, 2011), and as a result of the interactions of hierarchical networks in the cerebral cortex, the individual classifies that certain experience according to his or her own categorization by

means of a pattern recognition based on similar past experiences. This is the starting point of the generation of new knowledge – a point which precedes the stage of the introduction of the novelty to the economy. In the micro dimension, new knowledge (novelties, new rules, new products, new technologies, new ideas and so on) is generated as a result, and in the meso dimension it is then transferred with the capabilities of that individual to new forms. This codification process in turn shapes the environment as an artefact in the macro dimension, which is an object made intentionally for a certain purpose (Crilly, 2010). The process is cyclical; hence, it does not stop, but continues to evolve according to the same pattern – a concept defined as the perception/action cycle of an individual (Fuster, 2011). The simplest form of this cycle is a conversation between two individuals, where each individual needs to understand what the other individual says, then he has to think of its meaning, and formulate sentences for the continuation of a meaningful conversation.

This conceptual model can be useful for understanding the knowledge processes in which lecturers are involved. According to this scheme, social media use can have two effects: First, it can be the place where the lecturer has a new experience – meaning his or her access to the ideas of the others which are new to him or her. The lecturer perceives these ideas and interprets them in his or her own cognitive framework, based on the own, partial, subjective, incomplete knowledge of past experiences that are similar in their nature. These experiences can be related to his research or education. At this point, the objectively available information that he perceives turns into the subjectively generated knowledge. Furthermore, after this categorization of the perceived idea within his own cognitive framework, he can codify the new knowledge with his capabilities. This is the second effect of the social media use: In order to transfer the newly generated knowledge to his environment, the individual shapes his environment, which has shaped his perceptions resulting in the generation of new knowledge, and through that way entering into a perception-action cycle. In this context, the evolving environment of the lecturer is both the source and the outcome of the knowledge process – though it is never "available" in its *objective* form, and always appears in the *subjective perception* of an individual. In other words, how a lecturer perceives his environment and processes it to generate new knowledge may not correspond to the objective form of the environment itself; in fact, the differentiation between *information* and *knowledge* is capturing this idea (Hayek, 1948): Information objectively available in a system is perceived by individuals, processed subjectively and then turns into *subjective, tacit* knowledge. In terms of Rizzello and Spada (2013), this differentiation is important to understand market dynamics, and accelerating this process can be done by the use of social media in a strategic way. The target of this acceleration process can be enhancing the organisational knowledge basis in order to keep the strategic advantage of the organisation (Bharati et al, 2015). As put forward by Gao et al (2008), the organisational context has the focus of enabling such acceleration processes for knowledge flows, where turning the dispersed bits and pieces of knowledge to a whole within a particular organisation is an objective. In order to achieve this objective, a strategic approach to social media KM is necessary.

2.4 Social Media Knowledge Management

Four factors are accepted to be relevant for enhancing KM and sharing in the university context. In addition to organisational and individual factors, technological and communicational factors are also considered to be relevant. Openness in communication, trust, organisational rewards and culture, and the system quality of KM are empirically observed concepts that associate KM to knowledge sharing, since their effective use can contribute to research collaboration via knowledge sharing, implying creativity in research (Nya-Ling Tan, 2016). It appears that these factors are not restricted to creativity in research. The implementation of social media in lectures aimed at beginners can create interaction between the lecturer and students that enhance the early stages of the learning experience where students tend to remain passive participants (Leung et al, 2015). Although the research of Leung et al (2015) is restricted to the success of a Facebook-based tool, it can be adapted to include other social media tools as well.

Zhang et al (2015) mentioned that research studies related to social media (SM) and KM are increasing. The authors further indicated that SM and KM have shifted from the technological aspect towards management topics. Kaplan and Michael (2010) indicated that SM could improve the knowledge sharing process. Leonardi (2014) further combined the aspects of SM, knowledge sharing and innovation in the framework of communication visibility to conclude that SM also eases the improvement of meta-knowledge of third parties, i.e. "knowledge of who knows what and who knows whom" (Leonardi, 2014, p. 797), which is relevant for avoiding work duplication and developing more innovative ideas. These changes are contingent to the behavioural characteristics of the relevant actors at a cognitive level. Innovation is also an important factor and can be a competitive advantage for organisations. There will be a positive impact on innovation if there is

a creative environment and organisational learning (Nonaka et al, 2000; Jiang et al, 2012; Erkut, 2016b). In the same manner, Sigala and Chalkiti (2015) emphasised the importance of shifting from individual use to organisational use of social networks in improving the creativity of employees: "The social media enable people to aggregate, share, store and synthesise knowledge from various sources for the creation of new meta-knowledge" (Sigala and Chalkiti, 2015, p.45). It can be argued that the research on SM and knowledge sharing primarily focuses on the advantages of SM, which could neglect tensions that may arise from SM, such as privacy concerns (Gibbs et al, 2013; Sarigianni et al, 2016; Kaya and Erkut, 2017). Since privacy concerns are not restricted to the university context (Sarigianni et al, 2016), the market has created SM alternatives to Facebook that are more careful regarding user privacy. For example, a popular application that is heavily used among students is Snapchat. The use of Snapchat in the university context has emerged from the USA, where examples show both student engagement and the use of Snapchat for research purposes (Joly, 2015). Therefore, the ongoing developments in SM applications could be used for more employee creativity in both research and teaching.

2.5 Organisational Aspects

Contingency on the level of management goes back to the management literature of 1950s (Baraz and Sakar, 2011). It states that there is no single way of efficient leadership, but this is rather contingent on the environmental factors an organisation faces. Since then, the focus of organisational structures shifted towards more flexibility allowing the organisation to act contingently towards different situations it faces upon the interactions with its environment (Erkut, 2016b). Flexible and change adaptive organisational cultures provide a competitive advantage, mostly in response to their KM (Sigala and Chalkiti, 2015). On the other hand, the tacit dimension of knowledge cannot be transferred easily as "the tacit knowledge concept is very difficult to explain as well the fact that it takes place at the abstract level of the mind" (Kaya and Sagsan, 2015, p. 140). This could create a dilemma as to whether to make the knowledge explicit and transfer it via social networks or to withhold it as a strategic advantage. In their empirical work, Gibbs et al (2013) claimed that knowledge is used in terms of both openness (using SM to share knowledge with co-workers) and closeness (strategic affordances motivating employees to conceal knowledge). In addition to privacy concerns as mentioned previously, closeness is also justified as a way to avoid interpersonal conflicts, to avoid weakening employee morale in crisis situations, to prevent others from stealing original ideas and as an outcome of the time constraint, which is an impediment to document knowledge in the absence of incentives supporting this process (Gibbs et al, 2013).

Since these factors are subjective in their nature, it is necessary to consider the cultural aspects. Yang (2014) distinguishes between the core values of the organisation, behavioural standards (i.e. how the core values are perceived and adopted by the employees) and enterprise cohesion (i.e. employee attitude and satisfaction, coordination and dependency of the organisation). The organisational culture cannot be isolated from the country's culture and values, pointing out to the path-dependency (Khan and Khan, 2015; Erkut and Kaya, 2017). Members of a society obey different rules for different reasons and they follow the rules instinctively because they are part of their common cultural tradition (Hayek, 1973, p. 45), where the rules are either formal or informal in their nature.

From the KM perspective, it is therefore the path-dependency in the country's culture, history and norms, with which an organisation encourages or discourages its members to share knowledge. Khan and Khan (2015) describe values embedded in a nation's culture such as individualism, masculinity, power distance and uncertainty avoidance as relevant factors influencing the KM culture within an organisation. This issue is associated with the openness of the members to adopt innovation, since this perspective involves how creative and innovative activities are carried out. Creativity (Alwis and Hartmann, 2008), attending seminars, the leadership's openness (Mellor, 2011), and being alert towards changing conditions e.g. new research results (Alguezaui and Filieri, 2010) are factors that contribute positively to the Speed of Adoption of Innovation. Developed in 1970s, the concepts of mechanical versus organic organisational structures (Baraz and Sakar, 2011) are still relevant in the context of the Speed of Adoption of Innovation. Organic organisation is related to a quickly changing environment and the organisation's capability to keep pace with it, whereas a mechanistic organisation is more suitable for sectors with low competition and a relatively more stable environment (Baraz and Sakar, 2011; Erkut, 2016b). In today's perspective, these concepts relate to the fluidity and stability dynamics of markets, which are captured with the concept of market plasticity (Nenonen et al., 2014). Universities as knowledge hubs are ideally very high in taking new forms, but low in retaining these forms, indicating the ever-changing knowledge environment and the ability of university members to keep

pace with this environment through generating new knowledge and implementing it in research and teaching activities. Seniority of the management and how they perceive KM is another perspective that is associated with the cultural dimension of the organisation. Tenure of the employee (Lee et al, 2011), obligations and empowerment (Lin and Lo, 2015) and ambiguity tolerance of the employees (Sanz-Valle et al, 2015) are factors affecting the Seniority of Employees and their KM.

3.   Research methods

Tacit Knowledge Capacity (TKC) includes TKT and TKA as stated above. Knowledge transfer describes the transition from tacit to explicit knowledge (Kaya and Sagsan, 2015) and knowledge accumulation is used for the transition from explicit to tacit knowledge in terms of learning by doing (Nonaka et al, 2000). In order to capture the effects of SM use described in the literature review, quantitative methodology was used in this study, where the study population consisted of lecturers from two universities in Germany and North Cyprus. The quantitative methods consist of conducting a questionnaire and analysing the results using a median comparison and calculating correlations as well as conducting regression analyses.

A questionnaire was prepared based on the literature review and the conceptual model described in the literature review, which was conducted in both institutions in February-March 2016. The survey in Germany was conducted in German, in North Cyprus it was conducted in Turkish, where the translations were double-checked by three native speakers of each language in order to make sure that the questions were understood in the same way in both groups. 17 lecturers from Near East University (NEU) in Nicosia, Northern Cyprus and 21 lecturers from Technische Universität Dresden (TUD) in Dresden, Germany participated in the survey. There are 2200 students and 20 chairs in NEU; 2800 students and 23 chairs in TUD, so that the participation roughly corresponds to almost one lecturer from each chair in both universities. Internal consistency of the survey was checked with Cronbach's alpha, which delivered positive results implying that the internal consistency of the survey was present. In the second step, regression analyses were conducted based on correlation analyses to explain the relationship of TKC with a group of influence factors.
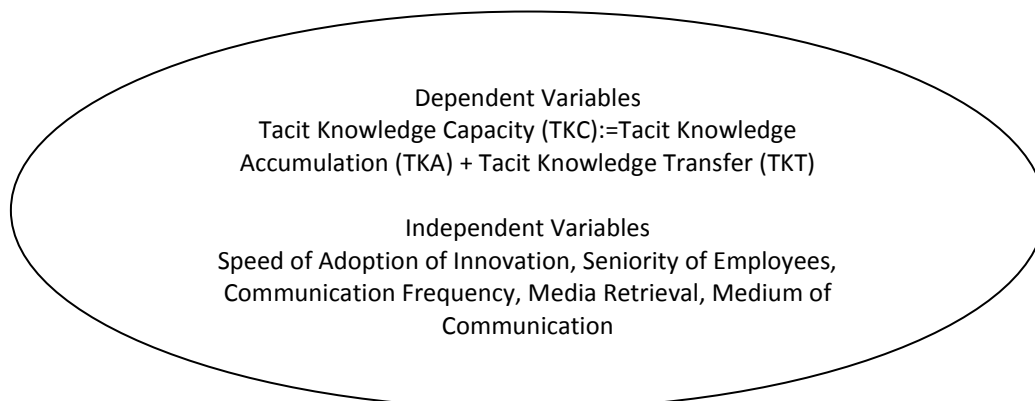

Dependent Variables
Tacit Knowledge Capacity (TKC):=Tacit Knowledge
Accumulation (TKA) + Tacit Knowledge Transfer (TKT)

Independent Variables
Speed of Adoption of Innovation, Seniority of Employees,
Communication Frequency, Media Retrieval, Medium of
Communication

Figure 1: The Research Model

Source: Own illustration based on Kaya and Sagsan (2015)

Problem statement: In spite of the popularity of SM, the impact of SM on KM has not been researched in detail. In addition, TKC may show differences according to culture in countries where there is also less attention on the topic of KM and culture. In response to this gap in the literature, the authors suggest the following research question:

How is the TKC of lecturers being influenced by SM?
Sub Research Questions;
- Do German and Cypriot lecturers differ in terms of their TKC?
- How do the lecturers transfer tacit knowledge by using SM?
- How do the lecturers accumulate tacit knowledge by using SM?

Based on the literature review it is argued that the below propositions could be designated under the following 5 titles (Kaya and Sagsan, 2015, p. 136):

"Hypothesis 1: The Tacit Knowledge Capacity is being positively influenced by Seniority of the Employees.
Hypothesis 2: The Tacit Knowledge Capacity is being positively influenced by the Speed of Adoption of Innovation.
Hypothesis 3: The Tacit Knowledge Capacity is being positively influenced by the Communication Frequency.
Hypothesis 4: The Tacit Knowledge Capacity is being positively influenced by Media Retrieval.
Hypothesis 5: The Tacit Knowledge Capacity is being positively influenced by the Medium of Communication."

Based on the survey results, the authors chose the method of study to be a two-step approach, where they identified the similarities and differences of lecturers based on their country regarding the factors of TKC. Median test for two independent samples can be utilized for this purpose, which is a non-parametric test suitable for two independent and unbalanced samples, based on Likert scales (Struwig and Stead, 2001). The test evaluates whether the medians of the answers differ between the two samples. The second step of the method corresponds to regression analysis. Two regression analyses will be conducted using TKA and TKT as dependent variables and the following as independent variables: Country dummies for the Medium of Communication (landline/mobile/e-mail/physical face to face/online face to face/WhatsApp/Viber/social networks); country dummies for the frequency of device usage (do not use/rarely use/neutral/high usage for mobile/tablet/laptop/desktop); communication frequency (Facebook, Twitter, LinkedIn, Instagram, Snapchat, Google+, YouTube, e-mail); Speed of Adoption of Innovation.

4. Analysis and Discussion

The first step was identifying the similarities and differences between the TKC of lecturers in the two countries by means of a median test for two independent samples. It was determined that the use of landlines, social networks and tablets was statistically different in both groups. Furthermore, other aspects that were different between the two groups were the accessibility of knowledge and whether faculty members were given enough responsibility.

Non-parametric correlations were calculated, which were less than 70% among the independent variables. Based on the correlation analysis, TKA was positive correlated with the Speed of Adoption of Innovation and Medium of Communication at a .01 significance level, and negative correlated with the Communication Frequency at a .01 significance level. TKT was positive correlated with SAI and Media Retrieval at a .01 significance level. Both models were significant at a .05 significance level (ANOVA). R squared for TKA was .408 and for TKT it was .475. The multiple linear regression results are given in Table 1 below:

Table 1. Results of the Multiple Linear Regression Analyses

Models	Dependent	Independent	Standardized Beta Coefficient
Model 1	TKA	Medium of Communication (NEU)	.413
		Medium of Communication (TUD)	1.214
		Communication Frequency (NEU)	.276
		Communication Frequency (TUD)	-.687**
		SAI	.435***
Model 2	TKT	Media Retrieval (NEU)	.419
		Media Retrieval (TUD)	2.051**
		SAI	.609***

**p<.05, ***p<.01
Source: Own calculation of the authors using the statistical software programme SPSS

Model 1
The effect of TKC was analysed to see if there is a relationship between the dependent variable (TKA) and the independent variables. The results show that the TKA will be affected by .435 units when the SAI is upgraded by 1 unit. Also, the TKA would be affected by -.687 units when the Communication Frequency is upgraded by one unit, although this is only significant for the Dresden sub-sample.

Model 2
The effect of TKC was analysed to determine if there is a relationship between the dependent variable (TKT) and the independent variables. It was revealed that TKT would be affected by .609 when the SAI is upgraded by one unit. The TKT would be affected by 2.051 when the Media Retrieval is upgraded by one unit, although this is only true (and significant) for the Dresden sub-sample.

SM Use of Lecturers
Facebook is the most used social networking site (SNS) amongst lecturers as the survey revealed that 63.4% of them visited it at least once a day. YouTube is the second most used SNS with 48.8% daily use; this platform can be used for providing educational videos in order to support students' learning. 63.4% of lecturers never used LinkedIn, which was surprising as that network is important as a career tool to increase professional networking. 73.2% of them never used Instagram while 95.1% had never used Snapchat. Especially the latter observation can be turned into an advantage once it is introduced to the lecturers in a strategic vision: A recent report indicates that college students feel more secure while using Snapchat (Utz, 2015) due to privacy concerns. In addition, it is one of the most popular SNS amongst university students (Joly, 2015). As it can be seen from these results, SNSs are not completely unknown to the lecturers; the need is a strategic approach towards the innovations in SM to ensure the tacit knowledge capability on the organisational level keeps pace with the technological change. As stated by Shelton (2017), new technological tools for professional purposes in higher education "are introduced not into a vacuum but into a context characterised by successful or unsuccessful technology use" (p. 318), hence, the approach of lecturers to previous and new technologies for their professional engagement constitute challenges of technology use in higher education.

Differences and Similarities of TKC between Lecturers
The landline use of lectures in Germany is higher than lecturers in Cyprus. The authors argue that this is due to increased mobile ownership in North Cyprus. There is currently 203% mobile ownership in North Cyprus compared with 132% in Germany (Balcioglu et al, 2016; Statista, 2016). The statistics indicate that Cypriots use mobiles considerably more and therefore it is understandable why their landline use is lower. When the use of social networks by lecturers was examined, it was found that Cypriot lecturers use them more than their German colleagues do. Cyprus has a high context society where people have closer relationships with their family members, friends and colleagues. On the other hand, Germany has a low context society where people have weaker relationships with their colleagues (Hall and Hall, 1990). The authors believe that greater social network use is due to the cultural behaviour of Cypriots. This observation is in line with Shelton's (2017) observations that the cultural context is a possible factor of influence regarding the technology use of lecturers in their professional activities.

"I can access knowledge I look for easier" scored higher among German lecturers. Employee accessibility to knowledge affects their creativity and therefore positively influences innovation (Sigala and Chalkiti, 2015). This indicates that knowledge needs to be made more accessible, which will improve the TKC of lecturers in North Cyprus. Mediums for exchange of knowledge need to be provided and SM can be such a medium. "Secret" Facebook groups amongst lecturers could be effective to increase knowledge transfer and accumulation within the department. In spite of previous research that indicated that seniority affects the TKC of physicians (Kaya and Sagsan, 2015), the research findings indicated that the seniority of lecturers did not have any impact on their tacit knowledge accumulation and tacit knowledge transfer, hence the authors rejected Hypothesis 1. This is understandable as the nature of knowledge constantly changes in competitive and fast moving environments, which means lecturers need to adapt to changes that are more related to their skills than their age. Recent empirical evidence by Aborujilah et al (2017) highlight hat senior lecturers are more keen than junior lecturers in the issue of receiving feedback on their courses from their students via social networks. In addition, the importance of life-long learning has also been highlighted by the authorities (Stock, 2013).

Regression Models 1 and 2 highlighted that Speed of Adoption of Innovation has a positive effect on TKC, which supports Hypothesis 2. Flexible and change-adaptive organisational cultures provide a competitive advantage, mostly in response to their KM (Sigala and Chalkiti, 2015). Therefore, removing hierarchical barriers will improve the KM process and the organisational effectiveness (Yih-Tong Sun and Scott, 2005; Erkut, 2016b). Especially decentralizing the knowledge processes by giving more initiative to individuals in flexible organisational structures (Erkut, 2016b) is an important notion to overcome the difficulties that arise from hierarchical barriers preventing individuals to generate new knowledge in a free and efficient way.

Nevertheless, this freedom has to be accompanied by incentives and the feeling of responsibility towards the organisation in order to achieve the desired objective of knowledge generation.

The regression models did not highlight any significant relationship between the Medium of Communication and TKC of lecturers; hence the authors rejected Hypothesis 5 and focused on the reasons of this finding. A closer look at the results delivers the following details: Facebook is the most used social networking site (SNS) amongst lecturers where 63.4% of them use it at least once a day. YouTube is the second most used SNS with 48.8% daily use; this platform can be used for providing educational videos. This opportunity seems to be promising, yet undiscovered in our sample; "YouTube can also be a channel for supporting education in which teachers have the opportunity to either discover supportive videos or upload videos themselves" (Kaya and Bicen, 2016, p. 376). Instagram can be used for providing module/class information, as visualization is an effective medium for education (Crnovrsanin et al, 2014). In addition, a recent report indicates that college students feel more secure while using Snapchat (Utz, 2015) and it is one of the most popular SNS amongst university students (Joly, 2015). When students' SNS use is considered, it is recommended that universities invest in SM platforms and encourage lecturers to use SM, as it will also increase their creativity (Sigala and Chalkiti, 2015). Improving creativity will improve innovation and therefore the KM process and TKA accordingly (Donate and de Pablo, 2015). There will be a greater chance of improving practices as more tacit knowledge will be accumulated. Thus, effective SNS use by lecturers can increase knowledge transfer and universities should encourage effective use of social networks.

Regression Model 1 furthermore highlights that Communication Frequency affects the TKA of lecturers negatively, although a significant result was only found for the Dresden sub-sample, contradicting Hypothesis 3. The authors explain this effect by possible distractions disturbing the knowledge processes of lecturers, once they are focusing on using SM for academic purposes. Therefore, it is advised for the lecturers to use applications that will lock other mobile phone features (communication, browsing etc.) while researching, which will increase the accumulation of tacit knowledge by reducing distractions. One observation based on anecdotic evidence also supports this fact; many of the lecturers from Germany stated that they can work better during their train trips than at their offices, since the distraction is at a minimum due to the absence of internet in many of Germany's local trains, which is nevertheless a changing issue.

In addition, Regression Model 2 indicates that Media Retrieval influences TKT positively, confirming Hypothesis 4, although the significance was also here only for the Dresden sub-sample. It could be stated that, as the media becomes more accessible, the transfer of knowledge will be increased accordingly. This is apparently not the case for the Nicosia sub-sample of lecturers. Tablet use by Cypriot lecturers was higher than their German colleagues. The use of new technological devices should be encouraged by institutions to increase TKT.

5. Concluding Remarks and Further Research

To conclude, the research findings highlight that universities should invest in SM platforms to increase the tacit knowledge accumulation of lecturers. Since the boundaries between the private and the professional are not very strict in the age of SM use, it is clear that investing in the web sites of the universities is not enough, since the knowledge processes occur mainly in or via SM. At this point, universities cannot intervene in the knowledge processes but rather shape these in a strategic manner: Not only the use of social networks such as Facebook, YouTube, Instagram and Snapchat is necessary for this process, but rather their *effective* use, especially with respect to the knowledge alliances of university easing the accumulation process of tacit knowledge. SM is a constantly changing field. Therefore, current trends need to be considered and the SM use of lecturers can be modified accordingly. As students have a high tendency to use SM, the use of the same communication channels will also be effective for knowledge transfer. Furthermore, removing hierarchical barriers and introducing incentives to use technological devices will also increase TKC and the creativity of lecturers, which will also boost the innovation capacity of institutions.

Clearly, knowledge processes in a knowledge intensive organisation cannot be planned centrally (Erkut, 2016b); however, a strategic direction can be given to the organisation, from which knowledge generation processes can emerge. How this can be done depends on the organisational culture and national values, but a point that can be mentioned is empowering the members of an organisation for taking more initiative and looking for ways to generate new knowledge by also keeping in mind that they are responsible for the

direction an organisation takes (Erkut, 2016b). As it is clear from the research on the contingency theory of management, "there is no perfect model of organisation which fits in every situation" (Erkut, 2016b, p. 117). The organisational culture and its interaction with the national values is rather a notion which cannot be imitated easily, since the way the organisational culture emerges is very much dependent on the way it is operationalised as a business conception (Erkut and Kaya, 2017). Therefore, how the members of an organisation will be empowered and how the flexible structures towards both formulating a strategic vision of innovation and adapting the innovation will be arranged are both contingent issues. The latter issue was captured by the significant relationship between the speed of adoption of innovation and the tacit knowledge capacity in both regression models. This study mainly focused on the possible influence factors of SM use on tacit knowledge capacity, which can be described as the stylized facts helping decision makers in universities to adjust their knowledge processes in order to keep pace with the technology.

What has to be kept in mind is that, how lecturers transfer and accumulate tacit knowledge, i.e. their models of the (scientific world), "cannot be isomorphic (i.e. 1-1) with an external world" (Lehmann-Waffenschmidt and Sandri, 2007, p. 20). In line with Lehmann-Waffenschmidt and Sandri (2007) authors therefore emphasize that knowledge in this setup has to be observed from a constructivist rather than the objectivist perspective, indicating the properties of particularity and possibility, and allowing for "heterogeneity and coexistence of mental models" (p. 23). This implies that the use of SM can accelerate the knowledge intensive processes of higher education institutions, but nevertheless also has to be utilized in a strategic manner in order to give the members of the particular institution a common cognitive framework. This remains as a challenge for the formulation of a strategic innovation vision.

Like many other quantitative studies, the research of the authors is not without any limitations. Although 85% of the target population at NEU and 84% at TUD were reached by this study, the number of lecturers involved in the primary research that was conducted is relatively small. Furthermore, there can be a self-selection effect in terms of participants, since it is more likely that those lecturers not familiar with SM may have chosen not to participate at this survey. Nevertheless, these limitations can be overcome by further studies. It will be more effective to develop and undertake this research for larger populations and different occupations that are also knowledge intensive. Identifying stylized facts from the tacit knowledge use of knowledge intensive professions can be set as a target to focus on ways to modify organisational structures to keep pace with the technological change especially for making use of the SM as a lubricant in the knowledge processes of organisations. This target can only be achieved with further investigation and also by implementations of the results in the strategic policies of knowledge intensive organisations.

Acknowledgments

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