

Knowledge Sharing Networks on Outcomes-Based Education: the Case of a Philippine Private University

Gerby R. Muya, Janet Calupitan

Abstract: While knowledge sharing has been a topic of interest in most knowledge management literature, little is known about knowledge sharing in private commercial sectors, particularly in private higher education institutions. Thus, this study aimed to analyze the knowledge sharing networks on outcomes-based education among faculty members in a Philippine private university. Using descriptive-case research design, the study analysed knowledge sharing network in terms of knowledge seeking, knowledge donating, and problem sharing. Analysis of the respondents' social networks revealed a generally simple, unidimensional and leader-centered knowledge seeking, knowledge donating, and problem ties. The knowledge seeking ties showed most individuals or nodes having only one tie of interaction and with no reciprocated interaction. Almost similar findings were found when it comes to donating of OBE-related information, but it showed more reciprocated interactions. The network showed no isolates, hence, members, at least at one point, had shared knowledge to others within the network. The problem ties showed almost all faculty members within the network sought help on OBE-related problems from other faculty members. The study concluded that the networks mapped out in this study were generally not complex, meaning that ties were usually unidimensional, but there was clearly an active network on OBE knowledge-collecting and sharing. Further, the study proved the utility of social network analysis as a theory and as a methodology in understanding how knowledge in an organization flows, thereby informing policies and strategies on knowledge sharing.

Keywords: knowledge sharing, knowledge management, outcomes-based education, social network analysis

I. INTRODUCTION

The world economy has become knowledge-based as three-fourths of the Gross World Product is produced using human knowledge and creativity and as the knowledge content of goods and services has been increasing [1]. The Asian Development Bank cited that knowledge management is more important than ever because knowledge is the key to linking development initiatives to better outcomes and greater social impact. Along this view, competition in the knowledge economy is becoming more crucial and many organizations, including private higher education institutions (HEIs), adapt knowledge management as a tool in sustaining their position in the market [2].

Literature on knowledge management underscores the role played by the social interaction among organization members. This is because social interaction has been recognized as an importance process through which new knowledge is created from the sharing of existing

knowledge. Thus, this study focused on knowledge sharing as a component of knowledge management.

According to Wang and Noe [3] and Riege [4], knowledge sharing is a factor of knowledge management success. Through knowledge sharing, employees can contribute to knowledge creation, innovation, and ultimately, the competitive advantage of the organization [5]. Moreover, knowledge sharing fosters economic growth and technological development [6] and promotes creativity and diffusion of innovation [7].

While knowledge sharing has been a topic of interest in most KM literature, little is known about knowledge sharing in private commercial sectors [8], particularly in private higher education institutions. Knowledge sharing is vital in knowledge-based organizations such as universities, since the majority of the employees are knowledge workers. In an educational set up, effective knowledge sharing ensures that academics are able to realize and develop their potential to the fullest [9]. Regardless of the type of educational institution, the quality of instruction must remain their utmost priority.

Meanwhile, one of the challenges confronting HEIs is how to effectively contribute to producing graduates who can meet the demands of the industry. Thus, the researcher deems it relevant to conduct a study on outcomes-based education (OBE). Outcomes-based education (OBE) means "clearly focusing and organizing everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences" [10]. OBE has brought a significant paradigm shift in the education and training of learners [11]. Developing countries have also responded to the call for OBE. The Philippines is no exemption. OBE is the thrust of most higher education institutions in the Philippines by virtue of the Commission on Higher Education's (CHED) mandate to restructure all program offerings to OBE. Based on literature review, there is lack of study on knowledge sharing on OBE, thus, this study attempted to address this research gap.

Review of literature

Knowledge sharing is defined as the transfer of knowledge among individuals, groups, teams, departments, and organizations [12]. In organizations, the purpose of knowledge sharing is to improve individual or team performance [14].

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KNOWLEDGE SHARING NETWORKS ON OUTCOMES-BASED EDUCATION: THE CASE OF A PHILIPPINE PRIVATE UNIVERSITY

In the emergence of the knowledge economy, it is widely recognized that knowledge is a critical asset for an organization to succeed in the increasingly competitive environment. As Cheng, Ho and Lau [9] argued, the dynamics of this economy requires organization to not only create knowledge but also to acquire and apply knowledge quickly. They pointed out that one possible way to do this is to share knowledge effectively. Most studies on knowledge sharing are dominated by those focusing on business organizations, which are obviously profit-oriented. However, this issue is equally important for academic institutions in which knowledge creation is a core activity.

According to Gibbert and Krause (as cited in [14]), knowledge sharing concerns the willingness of individuals in an organization to share with others the knowledge they have acquired or created. The sharing could be done directly via communication or indirectly by means of some knowledge archive.

In the study of [9] there are two identified non-exclusive ways of knowledge sharing: closed-network sharing and open-network sharing. In the closed-sharing model, the individual has the freedom to decide the mode of sharing and choose partners to share his or her knowledge. Open-sharing model, on the other hand, entails the use of a knowledge management system, as it involves multiple individuals sharing multiple knowledge assets. This type of knowledge is widely adopted in organizations to share organizational knowledge.

Meanwhile, one of the significant topics shared among professionals in the academe is OBE which implies a clear identification of what the students are supposed to learn, organizing of the instruction and assessment of learning.

The essence of teaching and learning is to bring about the desired changes in the learners, be it cognitive, affective or psychomotor and to ascertain the extent to which learners have achieved the desired outcomes. As Malan [15] pointed out, ambiguous learning outcomes and failure to assess learning outcomes may lead to pseudo-knowledge, pseudo-skills, pseudo-attitudes and pseudo-values. Malan further stated that dissatisfaction with educational policies and programs have given rise to revised initiatives thereby the call for outcomes-based education. OBE has been implemented in different parts of the world such as United States, New Zealand, Australia, Canada, Asia, among others. However, it also has its share of criticisms from opponent [15].

Donnelly [16] expressed that Australia's adoption of OBE has had a great deal of public scrutiny and debate, as many activists and academicians claimed that OBE does not represent 'world's best' curriculum and that it fails to successfully support teachers in their own work. McGraw (1994) as cited by [16] noted that it is impossible to assess how Australian students are learning given the lack of agreement on what constitutes improved learning.

In a similar vein, Lawson and Askell-Williams [17] argued that OBE is not a single idea—it is an approach that has different versions and practiced differently in different countries. Some of the issues associated with OBE Lawson and Williams identified include the locus of responsibility as to who should control the conditions that determine the learning outcomes, the practicality of accommodating all

students to progress in OBE and the nature of the outcomes itself that Spady envisioned. Lawson and Williams cited that a number of teachers found difficulty in translating and assessing the broad outcomes, particularly those relating to creative activity or personal disposition, in the actual teaching-learning process.

However, despite the major criticism surrounding OBE and its implementation, OBE remains a dominant educational restructuring that are applied in most schools in the West and in Asia.

Based on the foregoing literature, this study generally aimed to analyze knowledge sharing networks on OBE of faculty members of a private university in the Philippines. Specifically, this study sought to describe the education experience of faculty members in terms of educational attainment, length of teaching experience, subjects taught, and methods of teaching; identify the respondents' sources of information about OBE; and analyze the knowledge sharing networks of respondents towards OBE in terms of knowledge seeking, knowledge donating, and problem solving.

This study used the lens of Network Theory, is the study of how the social structure of relationships around a person, group, or organization affects beliefs or behaviors, since it attempts to map out the knowledge sharing behavior of faculty members in a private university.

II. METHODOLOGY

Using the descriptive-case research design, this study analyzed the knowledge sharing networks on OBE among faculty members of a private University in Batangas City, Philippines. At the time of the study. The said university has started its OBE implementation in 2007. All faculty members, full-time or part-time, served as the population of this study. Out of 270 faculty members, 111 were randomly employed as sample. Based on GPower, a sample of 111 was significant with α of 0.05, effect size of 0.32, and power of 0.95. Out of 111 samples, only 99 responded to the survey. Descriptive statistics such as frequency and percentage were used in the analysis and presentation of profile variables. The knowledge sharing networks of faculty members were analyzed using the software UCINET 6.

III. RESULTS AND DISCUSSION

Nearly half (45 percent) of the total sample of respondents had earned their master's degree and 22.5 percent finished their doctorate degrees. In terms of teaching experience, more than half of the respondents (57 or 51.35 percent) had been teaching for at least 10 years. However, many or the remaining 48.65 percent of the respondents had been in the institution for less than ten years which affirms the earlier insight that the institution had relatively young teachers with a relatively short to medium length of teaching experience.

Lecture remains as the most commonly used teaching method, as 88 (97.78 percent) of the respondents declared using it. Group work (77.78 percent), demonstration (72.22 percent), research (68.89 percent), and case study (51.11 percent) were also preferred methods of teaching, with at least half of the total respondents using them. Other teaching methods include film showing, machine shop works, project method, plant visit, project worksheet/database program, exercises, board work, recitation, actual device configurations, study guides, online exams, packet tracer activities, building webpages (using HTML, CSS/CSS3, JavaScript codes), laboratory activities, reporting, video presentation, and events proposal.

The most common sources of information about OBE among faculty members included in-house training (89.19 percent), colleagues (70.27 percent), external training (52.25 percent), LPU website (33.33 percent), and social media (20.72 percent). A few faculty learned about OBE through other channels, such as television, newspapers, and others. This result suggests that the institution both conducted training on OBE and sent faculty members to external training. Such OBE-related initiative was validated in the interviews with the deans and focus group discussion with the faculty members.

Knowledge sharing network among faculty members

Social networks examine the patterns of social relationships. Analysis of social networks aids in understanding knowledge sharing behavior. The unit of examination of this behavior, however, is not necessarily individualistic. The utilization of social network analysis or SNA means favoring the examination not of the individual actors but by highlighting the relationships (like ties or edges) among networks (like nodes or vertices) [18]. SNA can be considered as a powerful tool in, for instance, identifying teacher leaders in a network (see [19]). In this study, the flow of knowledge on OBE among faculty members was described in terms of knowledge collecting ties, knowledge donating ties and problem ties that developed among them. Out of 111 respondents, only 99 responded to the survey. By virtue of the country's Data Privacy Law and to protect the identity of the respondents, the researcher assigned letter and number codes. The letter corresponds to the college where the respondents came from while the number was assigned to maintain order and control. The codes are as follows: **CA**–College of Education, Arts, and Sciences (CEAS); **CN**–College of Nursing (CON); **CE**–College of Engineering (COE); **CM**–College of Allied Medical Professions (CAMP); **CD**–College of Dentistry (COB); **CC**–College of Criminology and Justice (COCJ); **CS** –College of Computer Studies (CCS); **CI**–College of International Tourism and Hospitality Management (CITHM); **CB** –College of Business and Accountancy (CBA); **LI**–Institute of Maritime Studies (LIMA)

Knowledge Seeking Ties

Knowledge seeking pertains to the pattern of interaction among the faculty members in terms of “who acquires new knowledge about OBE within the institution” (out-degree) and “who are being sought for or source of new knowledge about OBE” (in-degree). In the survey administered, the

respondents were asked the question “If you wanted to acquire something about OBE, from whom among your colleagues did you talk to?”

The sociogram illustrating the knowledge seeking ties of faculty members is presented in Figure 1. Among the active nodes, 25 representing all the colleges had in-degree links. This means they served as knowledge sources about OBE and in each college, there were key individuals that faculty members talked to when they needed information about OBE. Out of those 25 with in-degree links, CS1 registered the highest (35) followed by CN1 (19), CD1 (13), CM2 (9), and CD17 (8). This means that the five mentioned nodes were central as faculty sought information about OBE from them while nodes in the outermost were not. The rest had one to four in-degree ties. Prell [20] stated that in-degree centrality is often used as a measure of prestige or popularity. With this, this result suggests that those five nodes, who come from the College of Computer Studies, College of Nursing, College of Dentistry, and College of Allied Medical Profession were considered the most popular knowledge faucets regarding OBE. These five nodes were considered the central points in the knowledge collecting network of the Institution. It could also be inferred that the sources for knowledge collection were also limited to particular nodes or individuals; hence, restricting the propagation of multiple and more complex ties.

Moreover, it is interesting to note that CS1, CN1, and CD1 was the Dean of the College of Computer Studies, the Dean of the College of Nursing, and the Dean of the College of Dentistry, respectively. This would imply that their position is vital in information dissemination about OBE. They were seen as the major channels of information about the said topic. It could also be that faculty members considered them experts whom they can consult regarding OBE.

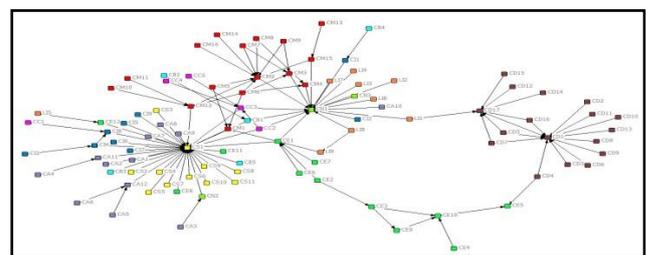


Figure 1. Knowledge seeking ties of faculty members

On the other hand, almost all nodes (97 out of 99) had out-degree links, which ranged from one to five. CM6, a male faculty from the College of Allied Medical Profession, surfaced as the most active knowledge seeker. The two nodes (CS1 and CN1) with no out-degree links were both considered champions of OBE, as the faculty stated during the focus group discussion. Thus, they were the ones considered as knowledge source. CS1 and CN1 were also asked about whom they talk to if they wanted to acquire new knowledge about OBE and both responded that they sought information from ABET, an international accrediting

organization and the Commission on Higher Education (CHED).

The out-degree links existing in the knowledge seeking network of faculty means that there was an active knowledge collecting activities regarding OBE in the university.

In general, the flow of information about OBE stems from what the institution labels as OBE champions who usually were the deans or head of the departments down to the faculty, although there were few faculty members who were also sought for on OBE matters. As the network illustrates, the faculty members were more active seekers than channels of OBE information. It can be inferred from the results that the faculty members were receivers of information from the source. This was supported by very few reciprocated interactions within the knowledge seeking network. The results imply that the OBE champions were considered knowledgeable on the subject matter and therefore, they were consulted in terms of OBE, what it is and its implementation.

Knowledge Donating Ties

Anchored on De Vries' [21]' definition of knowledge donating, this study refers the latter to "who shares knowledge about OBE to whom" (out-degree) and "who receives knowledge about OBE" (in-degree). To find out the knowledge donating ties among faculty members, the latter were asked the question, "If you wanted to share something about OBE, to whom among your colleagues did you share it?" Using Netdraw of UCINET 6, the researcher generated the sociogram for knowledge donating ties as presented in Figure 2.

The knowledge donating network had 183 active ties, 82 nodes and 54 reciprocated interactions. This means that there were also active knowledge donating activities within the network, considering that what most members shared were reciprocated. The network further shows that there was no isolate, implying that all members had shared knowledge to others within the network.

As to degree of centrality, all network members had out-degree links, meaning, they have shared knowledge about OBE to other members within the network. Among the 82 nodes, CD1 had the highest number of out-degree (14) followed by CE1 (11) and CS1 (11), CM1 (10), CS7 (10), CS9 (10), and CS10 (10). Similar to findings on knowledge seeking ties, in the knowledge donating ties, the active knowledge sharers were also the deans or department heads. This would imply that as the leader of a unit, the deans or department heads were perceived as experts on OBE and their position necessitates that they share this expertise to their people. Likewise, 73 nodes or members had in-degree links, suggesting that they had received information about OBE from their colleagues. The members who emerged with the highest number of in-degree included CS 1 with 17, CD2 with 9, CI 3 with 8, CE1 with 7, and CD1 with 6. In other words, these five members were the ones looked for when faculty members wanted to share something about OBE. The Dean of the College of Computer Studies (CS1), the Dean of College of Engineering (CE1), and the Dean of the College of Dentistry (CD1) were among those on the aforementioned top list.

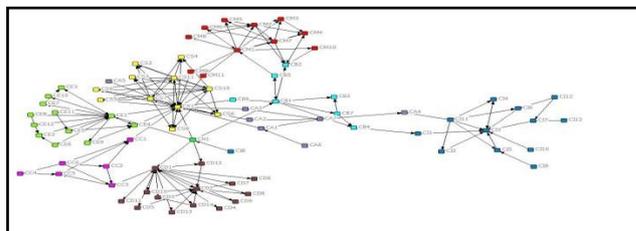


Figure 2. Knowledge donating ties of faculty members

However, apart from the heads, a faculty member from the College of Dentistry (CD2) and from the College of International Hospitality and Tourism Management (CI3) were also major recipients of information about OBE. Moreover, it can also be observed in the knowledge donating network that information about OBE was shared not only within but also outside of the faculty's home college. CAMP faculty shared OBE knowledge to CBA faculty, CEAS faculty to CCS faculty, CITHM faculty to CON faculty and COCJ faculty to CCS faculty. This suggests a dynamic knowledge sharing among faculty members.

Problem Ties

The problem ties focus on the structural pattern of relationship among faculty members in terms of "who seeks help to whom when the respondents encountered problems" (out-degree) and "who is being sought for help at the Institution" (in-degree). The respondents were asked the question, "If you have encountered problems with OBE, from whom among the members of LPU do you seek help?"

In a network of 99 nodes, 113 active links were formed. No reciprocated interaction was observed in the network. This means that there was a linear relationship between the faculty member asking help regarding OBE and the other faculty member consulted on or sought for. In terms of degree of centrality, 94 nodes or faculty members had out-degree links. This means almost all faculty members within the network sought help on OBE-related problems from other faculty members. On the other hand, 17 nodes or faculty members had in-degree links, which means they were the ones being consulted when faculty members encountered problems regarding OBE. Among those 17 nodes, the most visible central points were CS1 with 34 in-degree links, CN1 with 22, CE1 with 14, CD1 with 11 and CM2 with 7. These nodes or network members were considered most prominent as they were the ones sought for by most members within the network. This would imply that they can be potential consultants when people encountered problems with OBE. It is worthy to note that those central points being sought for were also the deans or departments of the Institution. Consistent with the previous findings, this network of problem ties among faculty members also implies that the college deans or department heads were considered experts or knowledgeable regarding OBE, as they surfaced as the most visible in the network. There were isolates who did not seek help or had not encountered problems regarding OBE. Four of them came from CEAS while one came from CITHM.

In general, the network shows that seeking solution to OBE-related problems flows from the faculty members to their deans. In other words, the network is leader-centered.

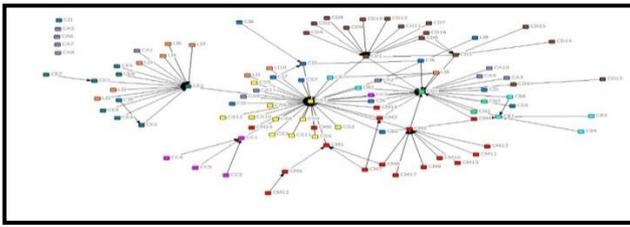


Figure 3. Problem ties of faculty members

IV. CONCLUSIONS

The networks that were mapped out in this study were generally not complex, meaning that ties were usually one-dimensional, and that each node or individual tended to have an average of one tie only. But there was clearly an active network on OBE knowledge-collecting and sharing.

For knowledge collecting, there was a lack of reciprocal relations with only five dominant nodes/actors (usually the deans or department chairs) who were sought after—known as OBE champions. There were, however, relatively more reciprocal relations in the network when it came to knowledge sharing; still, the same identified OBE champions were the ones who usually shared information. The network on problem ties further proved this finding revealing a linear or leader-centered network. OBE-related information in the organization flowed from the Dean or the head first then to the faculty members.

The study proved the utility of social network analysis as a theory and as a methodology in understanding how knowledge in an organization flows, thereby informing policies and strategies on knowledge sharing.

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