The Impact of Information and Communication Technology Use on Interorganizational Learning in an IT Outsourcing Collaboration

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Abstract
This paper presents three case studies that were used to develop theory on how information and communication technology (ICT) use impacts the ability of each partner in an alliance relationship to learn. The specific context for interorganizational learning was an IT outsourcer and three of its clients. The degree of organizational transparency and degree of receptivity were two key factors examined in the facilitation of the collaborations. Other factors examined because of their potential to impact the interorganizational learning outcomes in the relationships included: absorptive capacity (capacity of the partners to learn), relative absorptive capacity (similarity of the organizations) and the intent of the partners. Organizational transparency, organizational receptivity, intent and absorptive capacity were all found to have influenced the levels of interorganizational learning resulting from ICT use in the collaborations; no conclusive support was found for the impact of relative absorptive capacity.

1. Introduction

Information and communication technology (ICT) may enhance the effectiveness of interorganizational learning (IOL). IOL is the learning that takes place between organizations similar to the way individuals learn from each other. ICT such as e-mail, the Internet, shared databases, telephone, voicemail and instant messaging could facilitate collaborations between partners in an alliance by providing channels of communication that enhance key aspects of IOL such as transparency and receptivity. Transparency is the level of openness of a firm to its partner and Receptivity is the capacity of the collaborating partners to absorb the knowledge provided by one another. The purpose of this study is to explore the direct and indirect roles that ICT plays in facilitating IOL. Interorganizational learning is especially likely in today’s business environment where collaborative arrangements are becoming commonplace.

Collaborations are critical components of the competitive strategies of many corporations because they offer value to the firm by providing a flexible means of achieving market access, scale economies, and also the ability to develop competence [1] [2]. Collaborative relationships are particularly important in the field of “information technology” (IT), where increasingly, services are being provided by one organization to another, by organizations that specialize in such practices.

In many collaborations, information and communication technologies play a key role because they provide the solutions for bridging the resources of the organizations. Technology enables organizations to extend their reach, and it enhances the speed at which knowledge can be transferred [3]. Technology also provides organizations with the ability to extract knowledge from individuals or groups within the organization, and to structure the knowledge for use by trading partners [3].

The remainder of the paper outlines the theoretical background of the study and builds a conceptual framework that drives the research, describes the case study methodology used to collect data on a set of three interorganizational partnerships, analyzes the data derived from the cases, generates propositions that summarize the findings of the study, and provides conclusions and suggestions for further research.

2. Theoretical Background

2.1. Interorganizational Relationships

This study focuses on two areas, one within each of the two categories of the literature on interorganizational relationships outlined by Barringer and Harrison [4]. The first is in the area of organizational learning (namely interorganizational learning) and the second is in the area of alliances. Dickson and Weaver [5] define an alliance as “an arrangement between two or more firms that
establishes an exchange relationship, but has no joint ownership involved” [4, p. 391]. This definition was adopted for the purpose of this study; the business arrangement here is IT outsourcing.

2.2. Business Alliances and IT Outsourcing

Business alliances are not new phenomena, their roots date back to the 1960’s when outsourcing became a popular means for organizations to supplement their limited resources [6]. Alliances formed for the outsourcing of information technology have been a focus of interest since the late 1980’s when a landmark decision was made by Kodak to outsource its IT operations [7]. IT outsourcing can be defined as “handing over to a third party the management and operation of an organization’s IT assets and activities” [8, p. 1]. One area of importance that has been recently examined by researchers studying alliances is interorganizational learning (IOL).

2.3. Interorganizational Learning

Interorganizational learning can be described as the transfer of knowledge that takes place between organizations, rather than within an organization [1]. The transfer of knowledge also occurs when knowledge acquired in one organization has an effect on another organization; the impact can be either positive or negative [10] [11]. Alternatively, IOL can be viewed as the learning that occurs when organizations interact, and as a result of the interaction, new knowledge is created [1].

The type of knowledge transferred during the process of IOL can be in the form of explicit knowledge, tacit knowledge or both. Tacit knowledge refers to knowledge that is difficult to articulate and capture, deals with know-how, and is normally “deeply rooted in action, commitment and involvement in a specific context” [17, p. 16]. Knowledge that is explicit on the other hand, is knowledge that can be easily identified, coded and transmitted in a formal language [12].

A recent study that developed the theory of IT facilitation of interorganizational learning found that IT facilitated IOL in the disk drive industry where trust and close collaboration existed because of virtual integration of the partners [13]. The study identified two types of interorganizational learning: lower-level learning and higher-level learning. Lower-level learning is learning that results from “repetition and routine and involves association building” [14] [15] and deals with explicit knowledge, while higher-level learning is categorized as learning that results from a change in beliefs, overall missions and norms, and is more concerned with tacit knowledge [14].

Scott’s [17] study identified a number of other enablers that affect interorganizational learning but have not yet been explored. Two variables based on the theory of inter-partner learning that remain to be examined are transparency and receptivity [16]. Transparency is the level of openness of a firm to its partner and the opportunity it provides to its partner to learn [17] [16]. Transparency in an organization can occur when a firm provides its partner with access to resources within its organization; this can include access to people, documentation and the organization’s partners. Receptivity is the capacity or ability of the collaborating partners to absorb the knowledge provided by one another [17] [16]. Where organizations have specific learning goals for a collaborative relationship, the organizations would be considered to be receptive. Receptivity in a relationship can also be identified by a partner providing multiple channels for information to be taken into the organization (e.g., email, voicemail, shared databases).

The current study further develops theory related to interorganizational learning by examining how information and communication technology impacted the organizational transparency and organizational receptivity of the partners in three IT outsourcing collaborations for the management of IT when ICT was used to facilitate the relationships. Some other constructs were also examined because of their potential to impact the levels of interorganizational learning through interactions with effects on transparency and receptivity. They are: intent, absorptive capacity and relative absorptive capacity. Intent is the purpose or aim of the partners in terms of their learning objective, and it can be expressed verbally or in writing (e.g., in a contract or newspaper announcement) [17] [16]; absorptive capacity, which is identified by prior knowledge and intensity of effort, addresses whether the partners have an ability to recognize new information or knowledge from the collaboration and are able to incorporate it into the organization, plus the amount of effort they put into it [18]; and relative absorptive capacity looks at the similarity of the firms in their industries, compensation policies and organizational structures [19].

Three questions are examined in this study. 1) Is the use of ICT in an alliance positively associated with the degree of an organization’s transparency and receptivity? 2) Is IOL stemming from an alliance positively associated with the degree of an organization’s transparency and receptivity? 3) Where IOL occurs, how does intent, absorptive capacity and relative absorptive capacity of the partners affect the level of IOL?

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1 Some controversy remains in the literature surrounding the use of the word “partnership” or “alliance” as it relates to IT outsourcing contacts [8]. Some researchers believe that outsourcing relationships can seldom be called partnerships [7] [8], while others refer to them as partnerships or alliances [9]. This paper takes the latter view.
2.4. Conceptual Framework

Based on the existing literature, Figure 1 displays the key theoretical concepts and their relationships.

![Diagram of Conceptual Framework](image)

Figure 1. Conceptual Framework

In the conceptual framework the relationship between IOL and ICT are portrayed as being facilitated by the degrees of an organization’s receptivity and transparency, which are proposed to be enablers of the IOL process [16] [13]. The intentions of the organizations in the partnership may influence an organization’s degree of transparency and receptivity, and as a result the level of IOL. Organizations increase or decrease these factors based on their learning objectives [16]. Absorptive capacity is shown to have the potential to impact the relationship between the degree of receptivity and the final outcome of the level of IOL because it relates to the intensity of effort applied by an organization in the learning process and also incorporates into the process any prior knowledge, which may have been accumulated beforehand [18]. Further, the framework shows that the relative absorptive capacity of an organization has the potential to influence the relationship between the degree of an organization’s receptivity and the level of IOL because of the belief that organizations with similar structures and logics will have a higher capacity to recognize and absorb new information than those with differing structures [19].

3. Research Methodology

3.1. Research Design

A case study research methodology was used to collect and analyze both qualitative and quantitative data surrounding organizations in three collaborations. A multiple-case design with embedded units was employed using three in-depth cases for the sample to deduce theory from practice. The internal processes of the organizations were explored to examine how ICT impacted the degree of transparency and the degree of receptivity of the allied organizations and how it contributed to IOL outcomes when used to facilitate the relationships.

The three case studies surrounded an IT outsourcer (hereafter referred to as “Company A”) and its clients (hereafter referred to as “ED1” (a large public two year college), “ED2” (a small four year private college), and “ED3” (a small private university)). Company A is an IT outsourcer providing IT services and management to its clients. The Company A clients in this study consisted of educational institutions disbursed throughout the western U.S., ranging in size from small private to large public institutions. Company A was contracted by each educational institution to provide support for their administrative systems, in addition to helping them keep their systems up-to-date with technological advances. Company A provided its services to its clients via an “installation” of staff at each institution, referred to in this study as Co-A-Sub1 at ED1, Co-A-Sub2 at ED2, and Co-A-Sub3 at ED3. The lengths of the partnerships (client relationships) ranged from one year to over a decade. An overview of the collaborations is shown in Table 1.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of institution</td>
<td>Public 2 year community college</td>
<td>Private 4 year liberal arts college</td>
<td>Private graduate university</td>
</tr>
<tr>
<td>Size of institution</td>
<td>17,000 students, 700 staff, 839 faculty</td>
<td>2,000 students, 300 staff, 545 faculty</td>
<td>2,000 students, 150 staff, 170 faculty</td>
</tr>
<tr>
<td>Time in relationship</td>
<td>12 years</td>
<td>5 ½ years</td>
<td>1 year</td>
</tr>
</tbody>
</table>

The collaborations examined in the study were selected for literal replication because they provided the ability to examine the phenomenon (the impact of ICT use to facilitate an alliance and IOL outcomes) from the context of the relationships in existence for different periods of time, and in different types of settings and contractual arrangements.

The case study design was used for the following reasons: it is an inquiry that allowed a phenomenon (interorganizational learning) to be examined in the real
life context of the relationships [20] [21] [22]; it provided the ability to answer “how” and “why” questions [22] [23]; it allowed research to be carried out in an area where few studies have been done [22] and it provided the ability to perform the investigation where the boundaries were not clearly evident [21] [24], which is the case for almost all collaborations that are governed by informal norms and operate with less formal boundaries than those found in formal relationships such as joint ventures and consortia [4] [25].

Multiple case studies were examined to: provide more evidence than a single case, produce a more compelling study, add confidence to the findings [21] [26] [24] and because they support theory building by allowing for cross-case analysis and the extension of theory [25]. Multiple cases were used to pursue literal replication and the results used to draw conclusions about the study [21].

3.2. Data Collection

Multiple data collection methods were employed for the study to provide for the convergence of multiple sources of evidence in a process of triangulation [22] [21] [23]. Case 1 refers to the partnership between Company A and ED1 via Co-A-Sub1; similarly Cases 2 and 3 refer to equivalent partnerships.

Interviews: Data were collected through interviews with a selected group of key individuals in each of the organizations, questionnaire responses by some employees, information from the web sites of the organizations and through a system demonstration (a help desk system developed by Company A, implemented at each of the sites). A case study protocol containing the procedures to direct the data collection for the cases was developed and used to aid the exploration of the research questions.

Focused interviews [21] ranging from 30 minutes to one hour were conducted throughout a semester (based on availability of participants) with a select group of key individuals from Company A and each of the partner organizations. Participants were identified by the Company A executive directors from each site, and consisted of executive and staff level employees and were selected based on the frequency with which they worked with the partner organization. Interviews were guided by two interview protocols [27] and were tape recorded with prior authorization from participants. Follow-up questions were sent via e-mail to clarify specific points brought up during the interviews. A total of 26 participants were interviewed for the study. In Case 1, 8 individuals from both organizations were interviewed and in Cases 2 and 3, 9 individuals were interviewed for each case.

Questionnaire: A questionnaire developed from the research literature (but not tested for reliability and validity) was used to collect data about the ideas and constructs that were being examined in the research questions. The questionnaires were anonymous and were used to gather information from all organizations to corroborate the answers provided by interview participants. The questionnaires were distributed and collected from all organizations via the Company A executive directors at each site, and directly from participants. Twenty questionnaires were distributed for Case 1, 10 for Case 2 and 30 for Case 3. The number of usable questionnaires for Case 1 was 11, 8 for Case 2 and 15 for Case 3.

3.3. Data Analysis

Unit of Study: The main unit of study was the collaboration between an IT management and services provider and its clients (partners); embedded units analyzed within each collaboration were: 1) the use of ICT, 2) intent of the partners to learn, 3) ability of the partners to learn, 4) capacity of the partners to learn and 5) interorganizational learning outcomes.

Within Case Analysis: There is no standard format for within case analysis and the process is typically accomplished through a detailed description for each case that provides the basis for generating insights [23]. A framework for the case study report was therefore developed prior to the data collection to guide the within-case analyses and to write the case study reports. Detailed case study reports were written for each case to describe the use of ICT in the relationships, the collaboration context and processes leading to interorganizational learning outcomes.

The process for the case study analysis was as follows: interviews were recorded, then transcribed and coded as soon as possible after the interviews took place; interview data were coded in a software program (Atlas.ti) using the information in the “bins” as groupings to develop a coding scheme, which was used in subsequent cases. Within each case, tables were used to group categories of information for each organization in the collaboration and to identify examples of information that arose in the interviews to support key constructs and relationships. A vocabulary to help define the constructs was derived from the tables. The questionnaire data was tabulated to find the means; the interview information, questionnaire responses and the tables were then used to construct the case study report.

Information for each case study was gathered, coded, analyzed and the case report written up before subsequent cases were conducted. Questions in the questionnaire instrument and interview protocol were refined throughout the interviews and data collection processes for the cases.
Cross-Case Analysis: Key findings about the impact of ICT use on IOL were discovered by first analyzing the three case studies using a pattern matching technique to establish analytic generalizations [21]. A sample of the analysis is provided in Table 2.

Table 2. Sample of Cross-Case Analysis

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>CASE 1</th>
<th>CASE 2</th>
<th>CASE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT use</td>
<td>ED1 Co-A-Sub1</td>
<td>ED2 Co-A-Sub2</td>
<td>ED3 Co-A-Sub3</td>
</tr>
<tr>
<td>E-mail</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Instant</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>ERP</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Internet</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Intent to Learn</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Implicit</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

To identify patterns across the cases, the factors proposed to impact interorganizational learning were listed and rated according to the degree with which they were revealed within each case. For example, in the category “ICT use,” the use of e-mail by each partner in the collaboration was rated as either: high, moderate or low. Intent to learn was given a yes or no response and was determined by whether there was an explicit or implicit intent to learn identified in the case. In this study the embedded units (ICT use, intent to learn, ability to learn, capacity to learn and interorganizational learning) within each case were analyzed across the cases to see if similarities or differences existed.

4. Findings

4.1. Overview of the Collaborations

The structure of the collaborations and Company A’s role in each organization was different for each case; these are summarized in Table 3.

Table 3: Structure of the Collaborations

<table>
<thead>
<tr>
<th>Collaboration Characteristics</th>
<th>CASE 1</th>
<th>CASE 2</th>
<th>CASE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A role in IT dept.</td>
<td>Lead role</td>
<td>Support role</td>
<td>Lead role</td>
</tr>
<tr>
<td>Mgmt of IT dept.</td>
<td>Company A</td>
<td>ED2</td>
<td>Company A</td>
</tr>
<tr>
<td>Structure of IT dept. (staff)</td>
<td>50% Co A</td>
<td>70% ED2</td>
<td>100% Co A</td>
</tr>
<tr>
<td>Number of employees</td>
<td>Co-A (9)</td>
<td>Co-A (6)</td>
<td>Co-A (17)</td>
</tr>
<tr>
<td>Services provided by Co-A</td>
<td>Daily operations and mgmt of IT dept.</td>
<td>Networking, help desk and administrative computing services</td>
<td>Daily operations and mgmt of IT dept.</td>
</tr>
<tr>
<td>Level of Trust</td>
<td>Moderate/High</td>
<td>Moderate</td>
<td>Moderate/Low</td>
</tr>
</tbody>
</table>

In Cases 1 and 3, Company A was contracted to manage the educational institutions’ IT department and to take a lead role in IT for the institution; in Case 2 it was to provide a support role. In Cases 1 and 3, the departments were managed by executive directors from Company A; in Case 2, the IT department was managed by a VP of IT from ED2. The levels of trust within each of the relationships and across the collaborations varied slightly in their degree, and participants within each organization expressed both confidence and apprehension about the belief that their partner organization was trustworthy, willing to provide assistance and worked in the best interest of their partners. Lewicki et al.[28] point out that relationships are multifaceted such that both trust and distrust can exist in the same relationship. One explanation for the differences in the levels of trust in the cases might have been attributed to the length of time of the relationships. It should be noted that the word “trust” can be interpreted in different ways by different individuals [17]. In this instance, trust was interpreted as: the organizations’ willingness to provide assistance to its partner, partners always making business decisions that were beneficial to the other, and the belief by an organization that its partner was sincere at all times [29].

Although the three educational institutions in the cases were contracted with one organization, Company A, each collaboration was unique in that the sizes of the institutions varied, the goals of the collaborations were different (as were the individual goals of each organization), the make-up of the IT departments and the reporting arrangements were unalike for each situation, and the lengths of time in the relationships all varied. These differences provided the ability to examine the use of ICT and the key factors proposed to impact the learning outcomes resulting in alliances across different scenarios.

4.2. The Organizations’ Intent to Learn

Intent to learn in the collaboration was shown to exist in all the organizations in all three cases. The educational institutions had an intent to learn because of various goals they had defined: ED1 had a goal to keep moving ahead technologically, ED2 a goal to find the correct use of technology in an educational environment, and ED3 had a goal to develop and continually improve its academic and administrative technology infrastructure. In each collaboration, Company A’s intent to learn was driven by a number of factors including: the organization’s desire to provide service to its clients and to sell more services, and a goal to secure a renewal of each contract at the end of its duration.
4.3. How ICT was used in the Collaborations

In the three cases, the main technologies used among the partners in the collaboration were: e-mail, telephone/voicemail and shared databases. These technologies were used to a high degree; shared folders, ERP and the web were used to a lesser degree. Instant messaging was used only in the collaborations in Cases 2 and 3, and in those instances, the use was high. Remote access tools were used only in Case 2 by Co-A-Sub2 to support the help desk function (i.e., to connect to users’ desktop PCs) and to provide access to the network from off campus after hours.

In all three cases, e-mail and telephone were used extensively to facilitate the work of the help desk system that Company A had implemented at each site. Where the help desk system was available online (in Cases 1 and 2), the web was also used to facilitate the activities of the help desk (i.e., ability to submit work requests online and to check the status of a case). In each of the collaborations, the educational institutions had an ERP system in place, and the systems were used by the organizations to work with each other. The work using the ERP systems included: activities undertaken to address system problems (i.e., code modification, adjustments to get system functionality to work), new report development, system updates/upgrades and training. The use of ERP systems in the collaborations was moderate in Case 1 and high in Cases 2 and 3.

Technology was used by the organizations with their constituents. In ED1 the organization provided its constituents with access to large amounts of information through a web portal and it enabled some groups (e.g., faculty) to submit information. In this case, the use of ICT with the organization’s constituents was high. In ED2 and ED3, information was provided to the organizations’ constituents through their IT department web sites. All sites provided the ability to submit information to report problems, and ED1 and ED3’s sites provided access to submit help desk requests online. In all cases, in addition to using technology to work with their partner organization and to provide information to their constituents, the organizations used technology to interact with external organizations (i.e., vendors, user groups) that supported technologies in the collaborations. In these instances e-mail, telephone and the Internet were the technologies primarily used by the organizations.

4.4. The Impact of ICT on the Ability of the Organizations to Learn

Organizational transparency and receptivity resulting from the organizations’ use of ICT to facilitate the collaboration was evident across all cases, and was shown to be high in all organizations: Company A because of its desire to serve its partners, and the educational institutions because of their desire to improve the technology on their campuses. The high degree of transparency and receptivity indicated that through the use of ICT, all parties were provided with the opportunity to learn from their partners.

Organizational transparency and receptivity through the use of ICT was apparent in the collaborations when the organizations used technology as a tool in the relationship to provide their partner with information and also to access information to support the work under the contract (i.e., help desk updates via e-mail and on the web, help documentation in shared databases and on the web, project status/updates in shared databases and via e-mail and “hints and tips” information via e-mail). Additionally, transparency and receptivity was demonstrated when systems (e.g., ERP) were used as the medium to facilitate training among the partner organizations. When ERP systems were used to provide training to the educational institutions, Company A’s knowledge about the system functionality was provided to the educational institutions, and in the process, the educational institutions provided knowledge about their business practices and processes to Company A.

The use of various forms of technology by the partners as a conduit to take information into the organization, along with the organizations’ willingness to use technology for that purpose, showed evidence of the organizational receptivity in all three cases (i.e., the use of e-mail and the web to receive feedback on performance and work request status updates, the use of telephone to receive information about issues and to provide feedback, the use of a Virtual Network Community (VNC) tool to receive demonstrations of procedures, etc.).

Organizational transparency and receptivity were also evident in all organizations in the three cases where the parties used technology to work with external organizations to provide support for the technologies in the contracts; this included information shared and received via e-mail, telephone and listservs to resolve system problems, and information provided to help improve the operations of the educational institutions. The levels of organizational transparency and receptivity were shown to be within approximately the same range for all the organizations in each of the cases.

4.5. The Organizations’ Capacity to Learn

The capacity of each organization in the collaboration to absorb information from its partner in the three case studies was shown to be either high or moderate. Capacity to learn was shown through the organizations having employees with prior knowledge about the technologies being supported in the collaborations (i.e., Company A employees who worked at other educational
institutions, Company A employees who previously worked for the educational institution that were absorbed into Company A when the contract was signed, and employees from the educational institutions who had been through system implementations), and others with prior knowledge supporting technologies in an academic environment. Even though capacity to learn for Company A in Case 2 was lower than in Cases 1 and 3, (at the time of the study, the length of time the employees had been working at the client sites, was lower in Case 2 than in the other two cases), capacity to learn by all organizations was evident through the high amounts of training provided, either by Company A employees to the employees of the educational institutions or through the use of external vendors.

The amount of technologies and materials/documentation provided to the employees of the organizations’ in the three collaborations varied as did the extent to which the work environment was integrated. In Case 3, fewer technologies (i.e., new computers, laptops, etc.) and materials/documentation were available to individuals to perform their jobs than in the other two cases. In terms of an integrated work environment in the collaborations, at each of the educational institutions in Cases 1 and 3, Company A had responsibility for the management and running of the IT departments and therefore the work environments of Company A and the institutions at each of those sites were to a large extent tightly integrated and presented to individuals outside the department as an integrated front. As a result, integrated work environments for these two cases were rated high. In Case 2, Company A was not responsible for the overall management and running of the IT department at the educational institution, and there was no attempt by the institution to conceal the fact that some of the employees in the IT department were Company A employees. In that collaboration the integration of the work environment was much lower than that observed in Cases 1 and 3 and was therefore rated as low.

4.6. Relative Absorptive Capacity of the Organizations

Relative absorptive capacity of the organizations, which was measured by similarities in compensation practices, organizational structures, industry, and research communities (shown by how the organizations generated and shared ideas) varied slightly across all cases. Similarities were found among the educational institutions’ organizational structures and Company A’s because all had hierarchical reporting structures with clearly defined reporting arrangements for employees. The similarity in this area was rated as moderate for all three cases. Cases 2 and 3 revealed similarities in the compensation practices for the organizations, because somewhat like Company A, the organizations were private and had competitive compensation practices. In the case of ED1 however, the similarity was rated low because the compensation practices of ED1, a public institution, were very different from organizations in the private sector.

Similarities in the research communities of the organizations in the collaborations with their partner differed in each of the cases. In Case 1 the partners shared the most similarities in how they generated and shared ideas with each other: therefore a rating of high was assigned to that case. Idea generation and sharing between the organizations in Case 2 showed some similarities and differences, and was therefore given a moderate rating. The organizations in Case 3 had larger differences in their practices than the other two cases and the case therefore was rated low in this area.

4.7. Interorganizational Learning Outcomes

Interorganizational learning was shown to occur across all organizations in all three cases, these are highlighted in Table 4.

<table>
<thead>
<tr>
<th>IOL</th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower-level IOL</td>
<td>ED1</td>
<td>Co-A-Sub1</td>
<td>ED2</td>
</tr>
<tr>
<td>Higher-level IOL</td>
<td>H</td>
<td>H</td>
<td>M</td>
</tr>
</tbody>
</table>

With the exception of ED2, all the organizations in the collaborations (including the three Company A groups) experienced high levels of lower-level learning; only a few instances of lower-level learning in ED2 could be identified during the study. Examples of lower-level learning included: ED1 and Company A developing enhancements to an ERP system and streamlining business processes, and Company A changing its business practices as a result of feedback received through e-mail and telephone from ED2.

Occurrences and levels of higher-level learning showed some variation among the collaborations. Case 1 revealed more instances of higher-level learning than Case 3, where the learning was rated low for ED3 and moderate for Co-A-Sub3. Case 2 did not reveal any higher-level learning. Examples of higher-level learning included ED1 changing its business practices to incorporate the use of the web as an additional avenue to communicate with its constituents and, Company A changing its methodologies/procedures to incorporate the “ED3 way” of conducting business. The differences in the learning taking place in Case 2 versus the other two cases may have been attributed to the fact that the contract for
service was for a supporting role for technology for Co-A-Sub2, rather than a lead role, which was the case for collaborations in Cases 1 and 3. The differences in higher-level learning outcomes in Cases 1 and 3 may have been attributed to differences in the length of the collaborations: Case 1 twelve years, and Case 3 one year.

4.8. Other Key Findings

One additional factor that was not identified at the beginning of the study but which later surfaced during Case 1 interviews was the importance of face-to-face interaction and its impact on the use of ICT and IOL outcomes in the collaborations. In each case, interview participants were asked how much face-to-face interaction they had with individuals from the partner organization and how important it was to the relationship. In nearly all instances, interviewees pointed out that face-to-face interaction with the partner was very important to build the relationship and that the use of technology alone was not sufficient to support the interactions through the use of ICT.

Interviewees from both the educational institutions and Company A commented that face-to-face interaction was important because it allowed them to become familiar with the individuals they were interacting with using technology. Company A employees pointed out that face-to-face interaction enabled them to establish relationships with the clients they were supporting and this helped to gain their confidence.

5. Discussion And Theory Generation

5.1. Propositions and Hypotheses

The findings from the three case studies were integrated to draw inferences about ICT use in the alliances and its relationship to IOL outcomes to develop the following propositions:

- **Proposition 1**: The more ICT is used in facilitating an alliance the higher will be the opportunity to learn for the partner organizations.

- **Proposition 2**: While ICT use in an alliance provides the opportunity for the organizations in the relationship to learn from each other, in order for learning to transpire through the use of ICT, the organizations must also have an intent to learn, in addition to the ability to learn.

- **Proposition 3**: The capacity of an organization to learn in an alliance will impact its level of interorganizational learning when ICT is used to facilitate the relationship.

- **Proposition 4**: The more ICT is used in facilitating an alliance the higher will be the opportunity for the partners to learn from external entities associated with the organizations.

- **Proposition 5**: The use of ICT to facilitate an alliance must be accompanied by face-to-face interaction in order to ensure interorganizational learning among the alliance partners.

Five propositions are proposed to suggest there are relationships between ICT use and organizational transparency and receptivity and that these are impacted by the intent of the partners to learn. The study suggests that the learning outcomes arising from the alliances are influenced by the absorptive capacity of the partners in the relationship and its impact on the organizations’ degree of receptivity. The use of ICT with external entities to facilitate the relationship also impacts the transparency and the receptivity of the partners in the alliance, and the interactions with those organizations and the web of relationships provide additional avenues for learning to take place in the alliance. These relationships are shown in Figure 2, which is a modification of the conceptual framework developed in Figure 1 to guide the research study.

![Figure 2: Revised Conceptual Framework](image)

5.2. Limitations Of The Study

This study used multiple cases (replication logic) to generalize to a theory, therefore, the study is limited in terms of the fact that the results and propositions may only apply to the collaborations of the particular organizations used to conduct the study (Company A and to its relationship with educational institutions located in the western U.S.) and may not be generalizable outside of that area. The study is limited even further to the context of collaborations formed for the outsourcing of IT services and management in the higher education.
environment. Case studies, like experiments and unlike survey research rely on analytic generalization, which involve generalizing the results to a theory, rather than a population [20].

Allowing for replicability is a concern in case study research [30]. From a positivist perspective, replication following the suggestions by Yin [21] may be possible, but from an interpretivist viewpoint, the findings may turn out to be different because in an MIS case it is unlikely that researchers will observe the same set of events unfolding in the same manner [30].

Organizations have very different cultures in terms of the way in which they operate and these may affect their ability to learn and implement new knowledge obtained from a partner in an alliance. Because of time and resource constraints, the study did not take into consideration organizational culture and some cultures may be more conducive to learning than others [31]. A further limitation of the research is that interorganizational learning in an alliance can be impacted by a number of other enablers such as: requisite variety, redundancy, autonomy and fluctuation [12]. Examination of these enablers will provide a natural extension of this study.

5.3. Implications For Research

From a theoretical standpoint, this study contributes to existing theory in several ways: 1) it extends Scott’s theory and framework by showing how ICT facilitates interorganizational learning in service-based collaborations; 2) it provides insight into other enablers of interorganizational learning not examined by Scott [13], namely organizational transparency, receptivity and intent; 3) it examines collaborations in both public and private organizations; 4) it augments the work performed by Doz and Hamel [17] and Hamel [16], which looks at transparency and receptivity in alliances by applying the variables to ICT use and 5) it provides a framework of the factors influencing interorganizational learning resulting from the use of ICT to facilitate an alliance.

The theory and framework are important for researchers in a variety of disciplines including economics, organizational psychology, organizational behavior, and information science to examine collaborative relationships fully. Collaborative relationships are an important area of research because many organizations have to collaborate in order to meet the demands placed on them by their environment and to function most effectively, and because collaborations occur in and across all segments of society in both private and public organizations.

5.4. Implications For Practice

This study provides several benefits for practitioners given the limitations outlined above:

- First, it brings an increased awareness of the value and role that ICT plays in the development and transfer of organizational knowledge in external business relationships
- Second, it assists organizations in understanding ICT in terms of being an enabler or inhibitor in the transfer of knowledge in business alliances.
- Third, by providing information that can be used by organizations to expand their understanding of ICT, organizations can take steps where necessary to deploy their ICT in a manner that promotes the transfer of knowledge across organizational structures, or even to restrict access.

6. Concluding Remarks

This study looked at the impact of ICT on interorganizational learning when used to facilitate an alliance. Using three in-depth cases, the study found that ICT facilitated learning in the collaborations through its impact on the degrees of organizational transparency and receptivity of the allied organizations, which are two key factors that enable interorganizational learning to take place. The study found that the amount of interorganizational learning derived from the alliances was impacted by the intent of the partners to learn in the alliance, and the capacity of the organizations to learn. It determined that interorganizational learning and organizational transparency and receptivity were not limited to the partner organizations, but also extended to external organizations that the partners interacted with in order to support the relationship. The findings of the study highlight the importance of understanding ICT use in an alliance in an era where use of technology to facilitate a relationship between organizations is increasing.

7. References


