Achieving Job Satisfaction for Instructors in E-Learning: The Relational Coordination Role

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ABSTRACT

Relational coordination model has been applied to different sectors reaching positive results in terms of performance in contexts with highly interdependent tasks, uncertainty, time restrictions and tacit knowledge. In this research, the relational coordination model has been applied to prove high levels of instructor satisfaction in e-learning. According to the model, organizations can achieve performance by providing frequent, timely and problem solving communication mechanisms to support shared knowledge, in a context of shared goals and mutual respect. Instructors who teach online courses in Spanish universities and e-learning companies have been surveyed on these particular issues. By using Structural Equation Model analysis (SEM), it has been shown how higher standards in terms of relational coordination among instructors in e-learning explain higher degrees of satisfaction. The conclusions should be considered by universities and companies when they evaluate alternatives for the improvement of performance in online education and training.

Keywords: Communication, Coordination, E-learning, Job Satisfaction, Online Teaching, Relational Coordination, Shared Goals, Shared Knowledge

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1. INTRODUCTION

Information and communication technologies (ICT) have become part of the working and personal life for a large number of people in the developed and developing world. People are using Internet for entertainment, leisure activities, shopping and information searching and sharing. Both, the increasing use of ICT and globalization, have led to changes in society (De-Pablos, López-Hermoso, Martin-Romo and Medina, 2012).

But the area where technology has brought a more radical change is distance education and e-learning. Students in United States, taking at least one online course in 2012, reached the total number of 7.1 million (Allen and Seaman, 2014). The growth rate of e-learning in Western Europe is 3.5%, while in Eastern Europe it records a growth rate of 8.4% (Ambient Insight, 2015). This growth trend is also met in the use of e-learning in workplace training all over the world (Docebo, 2014).

E-learning strategies for both distance and campus based education have tended to be technology-driven or concentrating on the preparation of educational materials to achieve economies of scale, separating them from the processes of teaching and learning (Kirwood and Price, 2006). Human factors related to the instructor’s attitude towards e-learning, the level of collaboration and interaction between the learner and the instructor and instructor’s satisfaction with his job have been found to be critical success factors in e-learning (Selim, 2007; Sun, Tsay, Finger, Chen and Yeh, 2008, Bolliger and Wasilik, 2009). Soong, Chan, Chua and Loh (2001) have shown that critical success factors in e-learning should be considered in a holistic fashion. These studies explain that the role of instructor is essential, and that teaching and learning in online education are highly interdependent.

The literature on e-learning includes many articles on technical issues, course design, studies comparing online and traditional courses and factors affecting learners’ satisfaction. However, little cover about instructor’s satisfaction in e-learning has been found. Moore (2005) identifies faculty satisfaction as a critical factor for quality in online education and it is important to investigate further how high levels of satisfaction can be achieved. It is relevant to inquire about learners and instructors perceptions in order to assist managers and policy makers in their attempts to improve teaching and learning conditions (Baird, 1980).

Many studies have found that there is a positive relationship between job satisfaction and performance (Cummings, 1970; Mirvis and Lawer, 1980; Kornhauser and Sharp, 1983). Gittell (2009) proposed a model of relational coordination that can help organisations to improve performance outcomes and job satisfaction. De-Pablos, García-Martínez, Perea and Angón (2013a) found this model suitable to be applied to those contexts where high levels of task interdependence, uncertainty, time restrictions and tacit knowledge are required. Several researches have found that exists a link between the use of ICT and relational coordination, which affects organizational results (Cummings, Espinosa and Pickering, 2009; De-Pablos, Montes-Botella and Soret-Los-Santos, 2014). Gittell (2009) indicates that better results are reached taking into consideration communication (frequent, timely, accurate and problem solving) and relationships (shared goals, shared knowledge and mutual respect). For these reasons, in this research the relational coordination model has been applied to explain high levels of job satisfaction in e-learning for instructors.
2. THE IMPORTANCE OF INSTRUCTOR’S JOB SATISFACTION AND PERFORMANCE IN E-LEARNING

The relationship between job satisfaction and performance has been studied in different analysis, especially for the industrial sector. Cummings (1970) found that satisfaction causes performance, performance causes satisfaction and rewards cause both satisfaction and performance. Kornhauser and Sharp (1983) have conducted more than thirty studies in order to determine the relationship and performance in the industrial sector. Mirwis and Lawer (1980) identified that satisfied tellers were less likely to show shortages and less likely to leave their jobs.

Studies performed by Beyth-Marom, Harpaz-Gorodesiky, Bar-Haim and Godder (2006), Veldman, Van Tartwijk, Brekelmans and Wubbels (2013) and De-Pablos et al. (2013a) found that there is a relation between job satisfaction and performance at educational institutions. An extensive experience and several researches have shown that the success of e-learning programs is related to high levels of personal and professional satisfaction (Thompson, 2002; Bolliger and Wasilik, 2009).

Empirical studies (Trigwell, Prosser and Waterhouse, 1999; Virtanen and Lindblom-Yläne, 2009) established that students’ attitude to learning is influenced by teaching approaches used by teachers. Instructor’s attitude was also identified as a critical success factor in e-learning (Webster and Hackley, 1997; Selim, 2007; Sun et al., 2008). Therefore, instructor’s satisfaction can have an impact on its own motivation and it can also have an impact on learner’s motivation in the learning process. Learner’s motivation has proved to be critical for learning outcomes in IT Sector (Argawal, Pande and Arhuja, 2014) and employee motivation was found to be related to effectiveness in the workplace in IT sector (Sinha, Abraham, Bhaskarna, Xavier and Kariat, 2014). As a consequence, instructor’s satisfaction can play an important role in teaching outcomes in e-learning. Additionally, we must consider the fact that informal learning has an effect on teaching results. García-Peñalvo, Colomo-Palacios and Lytras (2012) affirm that ICT facilitate informal learning and make it more perceptible.

Based on the definition of faculty satisfaction given by ADEC, instructor’s satisfaction can be defined as the perception that teaching in the e-learning environment is effective and professionally beneficial (Bolliger and Wasilik, 2009). Sloan Consortium lists instructor’s satisfaction among the five pillars of quality in online education, together with learner satisfaction, learning effectiveness, access and institutional cost-effectiveness (Moore, 2005). Hence, an educational institution, that aims to achieve quality and efficiency in e-learning programs, must take into account instructor’s satisfaction with his job.

3. THE ROLE OF RELATIONAL COORDINATION IN E-LEARNING

As it was mentioned before, teaching and learning are highly interdependent. In the presence of strong interdependencies the process can not be optimized by separately optimizing each element it is made of (Marengo and Dosi, 2005). The success of e-learning depends on the ability to establish coordination amongst interdependently tasks, to properly coordinate different agents, making them sharing ideas, knowledge, objectives and to have relationships based on mutual respect.

The importance of coordination in organizations has been previously studied. Thompson (1967) describes how the effective coordination amongst highly interdependent tasks is characterized by the mutual adjustment amongst the participants. Later on, Faraj and Xiao (2006) observed that the mutual adjustment performs a little role at organizations since it produces high costs, and
we must consider that coordination takes place through mechanisms such as routines, timetables, previous planning and task normalization. Studies performed by Argote (1982) and Brandts and Cooper (2006) found a positive relationship between coordination and organizational results.

The importance of properly coordinating processes in teaching and researching activities has already been discussed in the academic literature (Drucker, 1988; Morton, 1991; Earl, 2001; Biggs and Tang, 2011; De Pablos et al., 2013a) and has been positively related to quality in Higher Education (Van Vught and Westeheijden, 1994; Cummings, 2007; Andras, 2011; Astin, 2012). Margalina, De-Pablos, Montes-Botella and García-Martínez (2014) found that relational coordination improves instructor’s job satisfaction in e-learning contexts.

Gittell (2009, 2011a) has presented a model that puts emphasis on understanding the importance of coordinating the relationships and the dynamics of communication in organizations to reach best results. Medlin, Pascal and Questera (2005), Gittell (2009) and López-Berzosa, De-Pablos and De-la-Puerta-Fernández (2011), De-Pablos et al. (2013a) and De-Pablos, Montes-Botella and Soret-los- Santos (2013b), Margalina et al. (2014) have applied models of relational coordination in different sectors; as airline industry, health care and long-term care industries, teaching and learning, etc. The model proved to be a power driven for both quality and efficiency outcomes.

This model proposes a relationship between two dimensions: communication and relationships. The model affirms that relational coordination is produced by a communication of high quality, supported by shared goals and knowledge and mutual respect. This kind of coordination, shown in Figure 1, helps organizations to achieve performance in any setting with high information-processing demands driven by characteristics such as task interdependence, uncertainty and time constraints.

Based on previous analysis (Follet, 1949; Thompson, 1967; Weick, 1993; Faraj and Sproull, 2000; Faraj and Xiao, 2006; Heckscher and Adler, 2007) in corporate environments of high/low interdependence, uncertainty and time constraints, Gittell (2009) offers a model to conceptualize the relational dynamics of coordination. Therefore, the model is defined as “a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration” (Gittell, 2002a, p. 301).
The relational dimensions of relational coordination are conceptualized as ties between work roles, rather than relationships that some profiles maintain in their daily functions (Gittell, Edmonson and Schein, 2011; Haider, 2013; De Pablos and Haider, 2013). Relational coordination improves performance of a work process with task interdependencies, uncertainty and time constraints, by improving the work relationships between people who perform the tasks, reinforced by a high-quality communication (Gittell, 2009; Gittell et al., 2011).

The model is shaped around two types of dimensions: relational dimensions (shared goals, shared knowledge and mutual respect) and communication dimensions (frequent, timely, accurate and problem solving communication. The mutual influence between the two dimensions is the basis of relational coordination model (Bond and Gittell, 2010).

Relationships based on shared goals, shared knowledge and mutual respect enable employees to coordinate more effectively the work process in which they are engaged (Gittell, 2002b). Shared goals play a key role in coordination of highly interdependent tasks (Saavedra, Early and Van Dyne, 1993; Wageman, 1995). Relationships based on shared goals motivate employees to move beyond subgoal optimization and to obtain better results for the overall process (Gittell, 2002b). Shared knowledge enables participants to communicate with each other with accuracy, as they know not only their tasks but also how their work is related with the work of other participants in the process (Gittell, 2011). Mutual respect generates an effective coordination, as participants value the contribution of others and consider the impact of their actions in others (Gittell, 2002b).

This web of relationships is affected by the frequency, timeliness, accuracy and problem solving nature of communication (Gittell 2002b). Frequent communication improves the coordination of roles by the closeness generated as a consequence of a repetitive interaction (Gittell, 2011). A fluent communication is important in the precise moment to achieve best results (Waller, 1999). Previous research indicates that the timeliness of instructor’s response in e-learning improves learning satisfaction (Arbaugh, 2000; Thurmond, Wambach and Connors, 2002). Accurate communication plays a critical role in the performance of group tasks (O’Reilly and Roberts, 1977). Problem solving communication leads to the optimization of the overall process, as the communication between the persons who perform certain tasks will be oriented to solve problems that appear in a group performance characterized for a high interdependence, rather than on blaming when things go wrong (Gittell, 2011).

Relational coordination is particularly important for achieving performance in organizations or organizational processes where high level of task interdependence (Thompson, 1967), uncertainty (Argote, 1982), time restrictions (Adler, Goldoftas and Levine, 1999) and tacit knowledge (Nonaka and Tacheuchi, 1995) are required. In e-learning teaching these circumstances appear:

- **Task interdependence**: two tasks are considered interdependent for this model if each of them depends on the other for final purposes. In e-learning the final purpose is for learners to understand and assimilate certain knowledge. The instructor must prepare the educational material in a way that it is easy for the learner to understand it, but the final result also depends on learner’s efforts and on the communication between them.

- **Uncertainty**: relational coordination is important when task and/or input uncertainty is high, enabling participants to adjust their activities with each other, as information emerges during the process (Gittell, 2011). E-learning presents today a group of obstacles, for example there is high uncertainty about learner’s knowledge and skills on the technology used to deliver the educational material. Certain degrees of uncertainty for the instructor are also produced by the lack of non-verbal communication with the learner (Willis and Dickinson, 1997).

- **Time restrictions**: exacerbate the effect of both interdependence and uncertainty (Gittell, 2011), so the relational coordination will have a higher impact as time restrictions become
wider. An online course takes place in a predetermined period of time, which leads to time restrictions in the performance of tasks. Time factor has been intensively studied in e-learning, as Barberà and Kirshner (2010) have shown in their literature review about this issue.

- **Tacit knowledge**: in the teaching processes, the instructor maintains certain degrees of tacit knowledge that is difficult to make explicit.

These characteristics of the teaching process in e-learning make us think that relational coordination can provide good results. In this study we have applied the relational coordination model to evaluate instructor’s final satisfaction with online teaching.

4. **RESEARCH METHODOLOGY AND HYPOTHESES**

With the main objective of knowing the influence of relational coordination in instructor’s final satisfaction with their teaching work in e-learning, we have performed an empirical analysis over a representative sample of instructors that are teaching online courses in universities and e-learning private companies from Spain.

For the empirical study, we have applied SEM analysis, structural equations containing latent variables and errors of measurement. In the proposed model, we consider that instructors’ satisfaction with their teaching work (WS) is achieved through the relational dimensions of relational coordination, shared goals (SG), shared knowledge (SK) and mutual respect (MR); supported by communication dimensions, frequent (FC), timely (TC) and problem solving (PS) communication and technology (SP).

As it has been previously be mentioned, we support that the application of relational coordination mechanism in e-learning teaching processes produces benefits. The three dimensions of communication (frequent, timely and problem solving) reinforce the relational dimensions (shared goals, shared knowledge and mutual respect). Relationships, based on shared goals, shared knowledge and mutual respect, have a positive impact on instructor’s satisfaction with the work of others participants in the e-learning process. These high-quality relationships have as final result higher degrees of job satisfaction for instructors in e-learning contexts. With the purpose of evaluating the impact of relational coordination on instructors’ satisfaction with their teaching work in online courses, we propose the following hypotheses:

**H1**: The three dimensions of communication will positively influence shared goals (SG), shared knowledge (SK) and mutual respect (MR) in the relationships of instructors with their boss, learners, administration staff and technical support staff.

For this hypothesis, the communication channel (Channel) was been taken into account as a variable that can have an impact on the quality of communication. Communication and relationship dimensions of relational coordination can influence each other (Bond and Gittell, 2010). Therefore, we tested the following relationships between the variables: frequent communication (FC) increases relationships based on mutual respect; timely (TC) and problem solving (PS) communication has a positive impact on shared knowledge (SK). As an effective communication in e-learning depends on its frequency and timeliness (Swan, 2002), we also analyzed if frequent communication (FC) increases timely communication (TC) and if TC has a positive impact on PS.

**H2**: The three dimensions of relationships have a positive impact on instructor’s perceived satisfaction with the work of other participants (SR) in the e-learning process.
Shared goals (SG) plays a critical role in the coordination of highly interdependent tasks, as participants in the process can come to more compatible conclusions (Saavedra et al., 1993; Wageman, 1995). Shared knowledge (SK) improves the communication between participants in a work process, by improving their knowledge about how their tasks are related to the tasks of others (Gittell, 2011). The model analyses if shared goals (SG) and shared knowledge (SK) increases instructor’s satisfaction with the work of others. For this hypothesis we have also tested the relations between the three relational dimensions: the impact of mutual respect (MR) on shared goals (SG) and shared knowledge (SK) and of shared goals on shared knowledge.

**H3:** High quality relationships (SR) in the e-learning process will positively influence instructor’s perceived satisfaction with the online platform (SP) used for teaching.

Johnson, Hornik and Salas (2008) and Zhan and Mei (2013) affirm that e-learning quality is not depending so much on technology, but on the quality of instructor-learner interaction. The aim of this analysis is to determinate if high-quality relationships could improve the use of technology in e-learning.

**H4:** Instructor’s perceived satisfaction with the online platform (SP) used in the teaching process will positively influence his satisfaction with his teaching work (WS).

As technology quality is considered to be an important factor in e-learning (Piccoli, Ahmad and Ives, 2001; Moore, 2005), we considered important to analyze its impact on instructor’s satisfaction with his teaching work in e-learning. The second reason for this analysis was to see which of the two variables, technology or relational coordination, has a major impact on instructor’s final satisfaction.

**H5:** High quality relationships (SR) in the e-learning process will positively influence instructor’s final satisfaction with his teaching work (WS).
Gittell (2011) says that the improved relationships through relational coordination mechanisms can be a source of job satisfaction. For this analysis, we have taken into account the profiles with whom the instructor frequently communicates and shares knowledge in e-learning for the performance of his tasks: learners, his boss, his colleagues, the administration staff of the institution and the technical support staff. Figure 2 shows in a graphical way the proposed model and hypothesis.

4.1. Methodology Used in the Empirical Study

In this analysis, characteristics of organizational behavior have been considered. Structured data bases were not found to collect this information and therefore the questionnaire was the best methodology to collect the data that we needed to validate the hypotheses. A questionnaire adapted from Gittell (2011) and De-Pablos et al. (2013a, 2013b) to the e-learning process has been used.

The questionnaire was sent to a representative sample of 38 online instructors from Spain, 29 of them were teaching online courses in universities and 9 in e-learning companies. Data via a web-based survey from each instructor were collected. The total number of the instructors that received the questionnaire is unknown, as it was sent first to the managers of these institutions, who send it to their instructors. The sample error is +/-15.82% (P=Q=50) and the level of trust is 95.5% (2 sigma). The answers were collected from February to May 2013.

Relational coordination was measured using Gittell’s (2011) guidelines, by using a five-point equally spaced Likert scale. The answers choices ranged from “never = 1” to “constantly = 5”. Instructor’s satisfaction with the LMS, his satisfaction with the work relationships and the final satisfaction with his job were measured using a four-point Likert scale, from “very dissatisfied = 1” to “very satisfied = 4”. In the questionnaire, questions related to the following variables are included:

- **General information**: type of e-learning institution
- **Technology**: the learning management system or the online platform used in the teaching process.
- **Communication channels**: the channels used to communicate with the participants in the e-learning process.

### Table 1. Latent variable correlations

<table>
<thead>
<tr>
<th>Channel</th>
<th>FC</th>
<th>MR</th>
<th>PS</th>
<th>SG</th>
<th>SK</th>
<th>SP</th>
<th>SR</th>
<th>TC</th>
<th>WS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC</td>
<td>0.51</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MR</td>
<td>0.45</td>
<td>0.61</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td>0.17</td>
<td>0.42</td>
<td>0.31</td>
<td>0.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>0.33</td>
<td>0.53</td>
<td>0.67</td>
<td>0.34</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SK</td>
<td>0.35</td>
<td>0.51</td>
<td>0.76</td>
<td>0.24</td>
<td>0.68</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>0.06</td>
<td>0.35</td>
<td>0.39</td>
<td>-0.06</td>
<td>0.42</td>
<td>0.38</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR</td>
<td>0.21</td>
<td>0.52</td>
<td>0.65</td>
<td>0.21</td>
<td>0.44</td>
<td>0.59</td>
<td>0.47</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>TC</td>
<td>0.38</td>
<td>0.59</td>
<td>0.38</td>
<td>0.63</td>
<td>0.31</td>
<td>0.44</td>
<td>0.06</td>
<td>0.38</td>
<td>0.69</td>
</tr>
<tr>
<td>WS</td>
<td>0.09</td>
<td>0.25</td>
<td>0.27</td>
<td>-0.01</td>
<td>0.08</td>
<td>0.22</td>
<td>0.14</td>
<td>0.31</td>
<td>0.18</td>
</tr>
</tbody>
</table>
• Communication mechanisms: the frequency of communication with the different profiles involved in the process; the real need that different profiles have to offer information at certain times and the frequency of communication for the solving of problems.

• Shared knowledge: the need that different profiles involved in the process have to share information and knowledge.

• Sharing of goals: the perception that instructor’s have about sharing goals with the different profiles they are working with.

• Mutual respect: the perceptions that instructor’s have about how other respect their work.

5. RESULTS AND DISCUSSIONS

In order to evaluate the model and validate the hypotheses, a structural equation model has been applied (SEM). The model was estimated via Partial Least Squares (PLS) procedures by using the Smart 2.0.M3 Software (Ringle, Wende and Will, 2005).

The decision to estimate the model using PLS was made according to the following criteria: the phenomenon investigated is relativity new and its modeling is in a developing stage, minimal recommendations exist concerning sample size (the PLS algorithm converges in most of the cases achieving high statistical power even with reduced sample sizes and is robust against missing data) prediction accuracy, and non-data multinormality requirements (Jöreskog and Wold, 1982; Henseler and Chin, 2010).

Discriminant validity was evaluated according to the Fornell and Larcker (1981) criterion. Correlations between the latent variables should be lower than the square root of the corresponding AVE (Table 1). As it can be observed in the main diagonal of Table 1, where they have been inserted, this is the case for all variables.

Internal consistency was measured by Cronbach’s Alpha and by Composite Reliability (Table 2). Cronbachs Alpha exceed the 0.5 required value (Nunally and Bernstein, 1994), except for the case of communication channel (Channel), problem solving (PS) and timely communication (TC), most probably because of the differences between the internal organization of the institutions in which these instructors are working. The internal organization of the institution determine

<table>
<thead>
<tr>
<th></th>
<th>AVE</th>
<th>Composite Reliability</th>
<th>R. Square</th>
<th>Cronbachs Alpha</th>
<th>Communality</th>
<th>Redundancy</th>
</tr>
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<tbody>
<tr>
<td>Channel</td>
<td>0.42</td>
<td>0.80</td>
<td>0.73</td>
<td>0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC</td>
<td>0.51</td>
<td>0.80</td>
<td>0.26</td>
<td>0.68</td>
<td>0.51</td>
<td>0.13</td>
</tr>
<tr>
<td>MR</td>
<td>0.72</td>
<td>0.93</td>
<td>0.38</td>
<td>0.90</td>
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<td>0.26</td>
</tr>
<tr>
<td>PS</td>
<td>0.45</td>
<td>0.78</td>
<td>0.40</td>
<td>0.65</td>
<td>0.45</td>
<td>0.18</td>
</tr>
<tr>
<td>SG</td>
<td>0.53</td>
<td>0.85</td>
<td>0.45</td>
<td>0.77</td>
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<td>0.24</td>
</tr>
<tr>
<td>SK</td>
<td>0.71</td>
<td>0.92</td>
<td>0.68</td>
<td>0.90</td>
<td>0.71</td>
<td>0.36</td>
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<tr>
<td>SP</td>
<td>0.62</td>
<td>0.87</td>
<td>0.22</td>
<td>0.76</td>
<td>0.62</td>
<td>0.13</td>
</tr>
<tr>
<td>SR</td>
<td>0.56</td>
<td>0.86</td>
<td>0.44</td>
<td>0.81</td>
<td>0.56</td>
<td>0.21</td>
</tr>
<tr>
<td>TC</td>
<td>0.48</td>
<td>0.81</td>
<td>0.34</td>
<td>0.76</td>
<td>0.48</td>
<td>0.13</td>
</tr>
<tr>
<td>WS</td>
<td>1.00</td>
<td>1.00</td>
<td>0.10</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
the communication channels used and the nature of communication between its employees. Composite Reliability values are all higher than the recommended 0.7 threshold. Finally, AVE exceed the 0.5 minimal recommended value by (Fornell and Larcker, 1981), with the exception of Channel (0.42), problem solving (PS: 0.45) and timely communication (TC: 0.47).

Statistical significance was sized up by means of 500 resampling bootstrap (Table 3) to minimize the estimator standard errors (Efron and Tibshirani 1993; Efron and Gong, 1983).

Overall, the relationships tested in the first hypothesis (H1) are statistically significant with p values < 0.05. There is only one exception, in the case of the relation between problem solving communication and shared knowledge (PS-SK; p > 0.05). Therefore, H1 is partially validated, proving that the three communication of the model have an impact on the relationship dimensions. Mutual respect increases shared goals (MR-SG) and shared knowledge (MR-SK). Frequent communication increases mutual respect (FC-MR) and the timeliness of communication in e-learning (FC-TC). Timely communication increases problem solving (TC-PS) communication between the instructor and the other participants in the process. The communication channel proved to have an impact on the frequency of communication.

In the case of the second hypothesis (H2), only mutual respect showed a direct impact on the quality of relationships (MR-SR, p < 0.05) that the instructor maintains with the other participants in the e-learning process. This does not mean that the other relationships dimensions of the relational model are not important, as results show that shared goals increases shared knowledge (SG-SK). If relationships are based on mutual respect at e-learning institutions, shared knowledge between the instructors and the other participants also increases (MR-SK). These results prove the key role that mutual respects plays in the e-learning process.

The third hypothesis is validated (H3: SR-SP), with p < 0.05, underlying the importance for e-learning organizations to focus on the quality of relationships if they want to achieve instructors’

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**Table 3. Total effects (Mean, STDEC, T-Values)**

<table>
<thead>
<tr>
<th></th>
<th>Original sample (O)</th>
<th>Sample Mean (M)</th>
<th>Standard Deviation (STDEV)</th>
<th>Standard Error (STERR)</th>
<th>T Statistics (O/STERR)</th>
<th>p Values*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel -&gt; FC</td>
<td>0.51</td>
<td>0.56</td>
<td>0.10</td>
<td>0.10</td>
<td>4.90</td>
<td>0.00</td>
</tr>
<tr>
<td>FC -&gt; MR</td>
<td>0.61</td>
<td>0.62</td>
<td>0.13</td>
<td>0.13</td>
<td>4.88</td>
<td>0.00</td>
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* p values two-tailed
satisfaction with the LMS. Instead, there was not found a statistically significant relationship between the satisfaction with the LMS and instructor’s final satisfaction with his job (H4: SP-WS).

Finally, the quality of relationships, supported by the communication and relationships dimensions of the relational coordination model, has a positive impact on instructor’s final satisfaction with his job (H5: SR-WS, p < 0.05).

6. CONCLUSION AND FURTHER RESEARCH AREAS

Internet and new technologies have brought a radical change in distance education and e-learning. Institutions must adapt educational materials and teaching methods to the virtual environment and face the changes in instructor’s job. Empirical studies have found a relation between teacher’s attitude towards e-learning and learner’s satisfaction (Webster and Hackley, 1997; Selim, 2007; Sun et al., 2008) and that job satisfaction is positively related with performance (Bolliger and Wasilik, 2009; Thompson, 2002). But e-learning, also, presents several circumstances that promote the use of the relational coordination model, such as, task interdependence, time restrictions, uncertainty and tacit knowledge. As a consequence, institutions that offer e-learning education and training must develop mechanisms in order to improve the quality of their offer. Instructor’s satisfaction with his job in e-learning is met if teaching methods are supported by mechanisms that allow the sharing of goals, knowledge and mutual respecting others work; supported by frequent and timely communication mechanisms.

In this research, the relational coordination model has been applied to the e-learning context to measure instructor’s satisfaction with his job. Our research tries to empirically validate if the use of relational coordination mechanisms in e-learning practices explains a better performance in terms of instructor’s final satisfaction.

We have built an exploratory model that tries to offer an explanation of better results in the case of e-learning practices. This study contributes to the evaluation of the coordination mechanisms in e-learning. This kind of analysis is important, since there are few empirical studies that put into relation and validate the effects of relational coordination in e-learning.

The basic conclusions of this research, from the tested hypotheses, are the following ones:

- Frequent communication increases mutual respect and the timeliness of communication (H1).
- Mutual respect increases the perceived degree of satisfaction of instructor with the work of learners, boss, administration and technical support staff (H2). Mutual respect also increases shared goals and shared knowledge (H1).
- The communication channel has an impact on the frequency of communication (H1).
- High quality relationships increase instructor’s final satisfaction with his job (H5) and they also increase the perceived degree of satisfaction with the LMS (H3).

However, in our empirical research it was not validated that problem solving communication impacts significative in the e-learning process. Also, the impact of instructor’s satisfaction with the LMS on the degree of instructor’s satisfaction with his job was statistically insignificant (H4). But, the relation between high-quality relationships (SR) on technology (SP) proved to be statistically significant. Therefore, by implementing relational coordination mechanisms, e-learning institutions can also achieve performance in the use of technology. We will go deeper in these particular issues in further researches and we will try to measure the impact of problem solving of communication and technology with higher samples.
Based on the results of this research, we recommend to e-learning institutions to foster relationships based on mutual respect for improving collaboration between their employees and the sharing of knowledge in e-learning processes. It’s important to create a space of psychological safety (Gittell et al., 2011), as their employees need it to find the best way of communicating and relating. This need is also met in the case of the relationships between the instructor and learners. Institutions must choose carefully the communication channel, as results show that it has a direct impact on the frequency of communication in e-learning contexts. Relational coordination mechanisms must be developed, if institutions want to improve instructor’s satisfaction with the LMS or in the case of new system implementation. This result is especially important for IT professionals working in e-learning projects, as it shows that the quality of work relationships has an impact on the satisfaction with the LMS. In order to obtain good results in the use of LMS, IT professionals must coordinate their efforts with instructors and administration staff through shared goals, shared knowledge and counting with frequent communication mechanisms. Finally, relational coordination must be measured and assessed in order to find variations and areas of improvement.

Although the findings of this research are relevant for the improvement of instructor’s satisfaction with their job and of e-learning education in general, the study presents some limitations. First, the study should be extended to a higher sample of instructors to see if other factors have an impact in relational coordination. Secondly, we should analyze and compare different samples, where the internal organization of institutions is previously known. In the e-learning market, there is a great diversity on terms of internal organization of institutions or businesses. As a consequence, we can find differences between the existent working profiles and their tasks at institutions. Third, the research has been conducted in a geographic context and it should be extended to a wider area.

REFERENCES


