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Renee M.E. Pratt

Florida State University, rmp03f@cob.fsu.edu

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Class Participation in Online Learning Environments – The Role of the Psychological Contract in Determining Use of Computer-Mediated Communication

Renee M. E. Pratt
Department of Management Information Systems
College of Business
Florida State University
Tallahassee, FL 32306-1110
rmp03f@cob.fsu.edu

ABSTRACT

Online educational offerings are becoming increasingly commonplace. At the same time, relatively little is understood about the factors contributing to students' participation in computer-mediated communication (CMC) in such environments, which ultimately affects student satisfaction with the online learning experience. In this paper, I propose a model that examines the relationship between an individual's psychological contract and CMC contributions. Individual differences and course structure are proposed to influence the development of the psychological contract. Felt social presence is proposed to mediate the relationship between the psychological contract and CMC contributions, while social influence moderates the relationship. Implications for research and practice arising from the theoretical model are also discussed.

Keywords

Psychological Contract, Online/Distance Learning, Social Presence, Social Influence, Computer-mediated Communication.

INTRODUCTION

In the realm of assisting literacy and educational levels, technology has come to the forefront in education. John Chambers, president and CEO of Cisco Systems, stated "There are two fundamental equalizers in life -- the Internet and education. E-learning eliminates the barriers of time and distance creating universal, learning-on-demand opportunities for people, companies and countries (http://www.e-learning.nl)." We are now able to attend classes online, take examinations, have group project interactions, and receive degrees online all while in the comfort of our own home, possibly thousands of miles away from the granting institution.

Online learning is continually growing and becoming one of the fastest growing fields in distance education using wide varieties of technologies and the Internet (Scagnoli 2001). Recently, a discussion for the demand of e-learning, defined as "technology-based learning in which learning materials are delivered electronically to remote learners via a computer network (p. 76)", showed the growth and welcomed aspects of online learning versus face-to-face (traditional classroom) learning (Zhang et al. 2004). Online distance learning has been defined as "an educational philosophy for designing interactive, responsive, and valid information and learning opportunities to be delivered to learners at a time, place, and in appropriate forms convenient to the learners (Hopper 2001: 36)." In 1999, the National Center for Education Statistics (NCES) reported that 1,680 institutions offered online education in 1997-1998 and the numbers have risen to 2,320 institutions in 2000-2001 (National Center for Education Statistics 2003). Institutions are suggesting that online learning is increasing and becoming more favorable amongst the students. Thus, it is important to understand factors that influence a student's propensity for making computer-mediated communication (CMC) contributions.

Distance learning or specifically technology-mediated distance learning, defined by Alavi, Wheeler, and Valacich (1995), is learning involving the implementation of information, computing, and communications technology applications. It is "becoming an important option within education because it facilitates the sharing of costs, information, and expertise among multiple sites while providing additional educational opportunities for distant or disadvantaged locations" (Webster and Hackley 1997: 1283). Specifically, I will be looking at distance learning in an online environment. Within this online

environment, some researchers agree that there are many factors influencing the effectiveness of learning, such as media characteristics, learning context, technology and learner characteristics (Zhang, Zhao, Zhou and Nunamaker 2004). Many of these learner characteristics are developed through prior experiences and course structure which help to create the student's psychological contract (PC).

Prior research suggests that an individual's psychological contract (PC), i.e., beliefs about the conditions of a reciprocal exchange between that person and another individual, differentiate his/her obligations to an organization, and expectations about the organization's obligations back to him/her (Rousseau 1989). In this paper, I apply the notion of one's PC to the online learning environment and examine its relationship to an individual's inclination toward making CMC contributions. In addition, I suggest social presence, or the degree in which an individual perceives others in CMC will mediate the relationship between PC and CMC contributions. Further, social influence or the direct or indirect effects of others is proposed to moderate the relationship. Thus, the research question I address in this paper is: Within an online educational environment, how does a student's psychological contract with the class affect contributions to CMC, and subsequently, the student's satisfaction with the online learning experience? First, I will proceed with an overview of the theoretical perspectives. Next, I will define each variable and discuss the roles of each as they relate to the model. Finally, I will conclude with the discussion of future research and practical implications.

THEORETICAL FRAMEWORK

The concepts of this paper are based on the idea that the psychological contract establishes the CMC within an online classroom environment. These ideas encompass the social cognitive theory, social learning theory, social information processing theory, psychological contract, social presence theory, and the social influence processes.

Social Cognitive Theory

The social cognitive theory, by Albert Bandura (1977), explains how environmental influences (e.g., social pressures, unique situational characteristics, personality, demographics, etc.) and individual behavior are reciprocally related. Therefore individuals choose their environment and the influences that come with these environments and in turn these environments are affected by the behavior. The theory looks at the role of cognitive factors and specifically two major related outcomes. First, individuals are more likely to be influenced and take on certain behaviors if there is a favorable outcome, rather than an unfavorable outcome. Second, Bandura (1977) examines self-efficacy, or the beliefs about one's ability to perform a specific behavior. In this paper, I am specifically looking at the second set of expectations, self-efficacy.

Self-efficacy is the perception that an individual has the knowledge and ability to complete a task to the individual's expectations. Bandura (1977: 192) defined self-efficacy as "efficacy expectations which, in turn, determine the conviction that one can successfully execute the behavior required to produce the outcome." According to Jones (1983) self-efficacy is related to feelings of personal mastery. Furthermore, newcomer's expectations will moderate the reality shock of entry and influence the way in which they respond to the context in which they find themselves. In reference to the distance learning environment, a new student will enter the online environment with knowledge that this is a new experience, manage the shock level and influence the development of their psychological contract.

Social Learning Theory

In addition to the social cognitive theory, Bandura (1977) also developed social learning theory to lend to the understanding of an individual's past learning experiences. It attempts to view the way in which individual's have learned to interpret and define a situation leading to self-efficacy. Individuals learn by observing and modeling other human behaviors and then recalling these actions when necessary (Robinson and O'Leary-Kelly 1998). Specifically, Bandura (1977) developed four component processes underlying observational learning – attention, retention, motor reproduction, and motivation. Since learning consists of these components, social learning theory extends over both cognitive and behavioral frameworks. For students who have taken online learning courses, they continually refer to their experiences within these contexts, while a new student will rely on their face-to-face interactions of past classrooms and attempt to modify this to the online experience.

Social Information Processing Theory

Developed by Salancik and Pfeffer (1978), social information processing (SIP) theory states that individuals use information from their immediate social environments to interpret events, develop appropriate attitudes, and understand expectations concerning their behavior and its consequences. Applying this perspective to online classroom environments, suggests that

individuals will receive social cues that convince them that certain levels of CMC are acceptable. SIP suggests that information conveyed via individual's social networks influences their cognition about a target technology (Fulk 1993; Schmitz and Fulk 1991). Social networks represent patterns of relationships that expose the individual to perceptions, influence, and behaviors (Ferris, Hochwarter, Douglas, Blass, Kolodinsky and Treadway 2002; Rice and Aydin 1991). This exposure helps to define a student's individual psychological contract.

Psychological Contract

Over the past several years, psychological contracts have been defined in an employee-employer environment. In 1962, Levinson, Price, Munden, Mandl, & Solley developed the concept further and defined psychological contract as "the sum of mutual expectations between the organization and the employee (Anderson and Schalk 1998)." In 1995, Rousseau defined the psychological contract as an individual's beliefs about the terms and conditions of a reciprocal exchange agreement between that person and another party. Other definitions have been formulated over the years in various supervisor-subordinate roles.

The psychological contract looks at mutual obligations as the central issue (Rousseau 1995). These mutual obligations are mostly seen as implicit, covertly held, and infrequently discussed amongst the individuals involved (Anderson and Schalk 1998). Although the psychological contract is a mutual obligation, it is neither concrete nor required to be verified between both parties involved. The psychological contract is the incorporation of beliefs, values, expectations, and aspirations developed by the individual upon entrance to the program or organization (Roehling 1997; Rousseau 1989; Smithson and Lewis 2003). In addition, the notion of violation of the psychological contract will result in mistrust, disappointment, and possible departure from the environment.

Social Presence Theory

Originated by Short, Williams, and Christie (1976), social presence is defined as the perception that the individual is communicating with "live" people instead of impersonal objects (e.g., technology). They also explained that when the degree of social presence is low, the group members or individuals feel disconnected and cohesion levels are low. When the degree of social presence is high, there is a feeling of mutual involvement. In the online environment, the form and level of communication creates the perception that the other individuals involved are available and nearby. Hence, social presence can be evaluated through a sense of immediacy and intimacy in a group message (Cartwright 2000).

The concepts of intimacy and immediacy are associated with social presence (Short et al. 1976) and despite the lack of nonverbal communication cues have richness in the computer-mediated community (Gunawardena and Zittle 1997). In Stein and Wanstreet's (2003) study of social presence, an online collaborator expressed the feeling of intimacy through non-inhibitions or environment free of pretense:

"It seemed like we were really open with each other from the very first chat, and I feel that has caused us to grow as a group because there's an intimacy, if you will, about that forum that we wouldn't necessarily have face to face."

It has been noted that the intimacy (i.e., online communities and warm friendships) and immediacy concepts are present in CMC (Gunawardena and Zittle 1997; Walther 1992). Hackman and Walker (1990) examined teacher immediacy through television and proved that it contributes to the satisfaction and learning in an interactive environment. Currently in the distance learning context, it is possible to visualize satisfaction of students from the nature of the course (i.e., student-instructor interaction) through immediate feedback from the instructor by office hours and instant messenger discussions.

Social Influence

Most recently, Hochwarter (in press: 4) defined social influence as "self-presentation activities undertaken to alter or manage the attitudes and actions of individuals and/or groups for the purpose of maximizing gain, maintaining the desired status quo." This definition best implements the ideas and thoughts that are driving the moderation of social influence between social presence and CMC. While social presence is a feeling or experience of others being close, social influence is the action or event that motivates the individual to participate or not participate in CMC.

Social networks, a process of social influence, represent patterns of relationships that provide the structural context for influence processes with organizations (Rice and Aydin 1991). Social networks differentiate the type of social influence which moderates social presence and CMC. Social networks provide an individual with both a group of influencers who are organizationally related (e.g., students in the class) and another group that has personal ties such as friends in the same class.

This network represents access to information and other resources outside of the online environment (Brass 1984; Brass 1995). The key aspect to social networks is that they influence the individual to either participate or not participate in a given activity due to the exchange of information, opinions, and reduced uncertainty making the individual conducive for the social influence process (Ferris et al. 2002).

DESCRIPTION OF MODEL

The next several sections will discuss the model in depth with descriptions of the variables and their relationships with each other. The model was developed to describe the interaction between a student's psychological contract in the distance learning environment and the effects it has on CMC and classroom satisfaction.
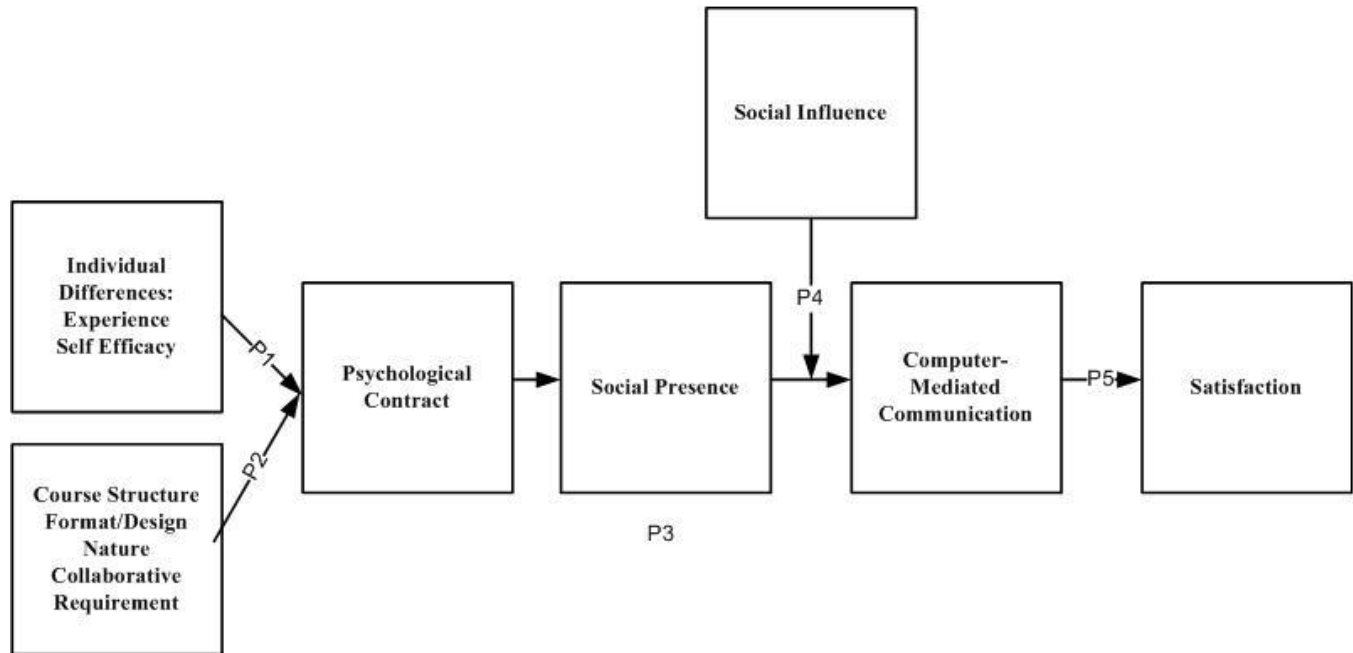

Figure 1. Model of Psychological Contract in Determining Use of Computer-Mediated Communication

Individual Differences

Individual differences are seen as the dissimilarities among people including differences in perceptions and behaviors, traits, personality characteristics, and variables such as education and experience (Agarwal 2000). Although there are numerous variables which fall under individual differences including cognitive style (Benbasat and Taylor 1978), gender, age, experience, personality (Taylor and Todd 1995), and motivation (DeSanctis 1982), I will be specifically looking at experience (Taylor and Todd 1995) and self-efficacy (Bandura 1977).

Experience

One type of learning is based on prior knowledge and experience brought to bear on learning tasks (Zhang et al. 2004). The constructivist learning theory discusses how creating a knowledge base from the connections and experiences of the individual develops learning (Conceição-Runlee and Daley 1998). Experience is the collection of events over a time period. These experiences influence our interaction with new events and assist in determining the final reactions through recollection. Azjen and Fishbein (1980) associate past experiences with a stronger intention to behavior partially due to increased saliency. The new student is susceptible to the power of the social presence and social influence of the distance learning environment during the online class activities. Prior to interaction with their classmates, a psychological contract between the student and their classmates and the student and their instructor is developed within the student's mind. Jones (1983) argues that

"individual differences influence the newcomer's initial psychological orientation towards the organization" affecting their ability to understand the online context. The individual's past experiences assist in their judgment as to how they will orientate themselves within the distance learning environment. Several authors agree that experience is an important influence on the psychological orientation of the individual before entering an organization (Jones 1983; Katz 1980; Van Maanen 1977). Supporting the idea that experience influences the psychological contract developed by a student in the distance learning environment, an individual's past experiences influence their psychological contract.

Proposition 1a: A student's positive prior experiences with online education classes influence the psychological contract he/she has with the class positively.

Self-Efficacy

Self-efficacy is an individual difference that allows the individual to determine individual behavior and performance toward using information technologies (Agarwal 2000; Compeau and Higgins 1995). Marakus, Yi, and Johnson (1998: 129) defined computer self-efficacy as "an individual's judgment of efficacy across multiple computer application domains." As a student, positive learning characteristics with online learning courses assist in the determination of high computer self-efficacy. The student then prides him/her self in having a comfortable amount of knowledge in the computer application domain and will positively influence their psychological contract. The student is not required to have computer self-efficacy with the specific software, but any knowledge of computer software will benefit the student's ability within the class.

Proposition 1b: Positive experience with CMC (high self efficacy) will lead to a psychological contract exemplified by positive expectations for the class.

COURSE STRUCTURE

Design

The instructional approaches and technological or social infrastructure provided by the online educational systems of the student are extremely important to the development of the student's learning. For example, when a program determines learning is more meaningful and effective through applications and group work, but falls short by offering a self-paced non-collaborative format, an encouraging atmosphere for distance learning is not cultivated (Yoon 2003). Strength for pedagogy or the teaching profession in an online environment is providing several medium types such as asynchronous (slides, transcripts, audio, etc.) or synchronous (student interaction, discussions, group sessions, etc.) learning (Yoon 2003). Hence, attention towards the design of an online learning course has implications on the students overall satisfaction with the course (Gunawardena and Zittle 1997).

Nature

The nature of the course deals with the ambiguity of involvement of both the instructor and the students in the class. The instructor will determine how in depth the relationships of the student-student, student-instructor, and student-real-world knowledge interaction coincide. Providing times for the groups to gather online and discuss questions can enhance the student-student interaction (Yoon 2003). The assignment of outside projects encompassing activities occurring in the real-word, reading cases about current companies, or having guest speakers online to talk with students conveys a meaningful experience between the students and the real world, creating complete and full student-real-world interactions.

Collaborative Requirements

Collaborative requirements consist of the composition or framework of the course – the syllabus and requirements of the student. It is a collaborative format because the instructor has the opportunity to mix the different forms of pedagogy for the student. A collaborative requirement is different from nature, as it specifically deals with coursework and classroom activities whereas nature is the actual relationship or interaction between the individuals (e.g., student-student, student-instructor, etc.). The student may have required readings, projects, group interaction via messenger, in-class discussions through virtual classrooms and discussion boards, and/or homework assignments that carry an obligation (e.g., percentage of grade). This obligation assists in influencing the psychological contract developed by the individual. Each student understands their requirements and also begins to develop thoughts as to how the course structure variables will mold both their activities and their fellow students' activities in the class.

Proposition 2: The combined attributes of design, nature, and collaborative requirements will influence the psychological contract.

Psychological Contract

Each individual develops a mental contract between him/herself and the environment he/she is going to encounter. This contract may be seen as a "one-way contract" when looking from an individual's perspective (Smithson and Lewis 2003). The classmates and instructor may or may not agree with the subjective beliefs of the individual and therefore may lead to broken promises and/or a violation of the individual psychological contract. Rousseau (1989) argues that the psychological contract is initially promise-based, but may become a stable and long term contract with capabilities of continuous modification. Since the psychological contract is not a written contract, but dynamic, research provides a snapshot of time capturing one moment in the process (Smithson and Lewis 2003).

The prior experiences, self-efficacy, and course structure are variables that influence the student's psychological contract. The psychological contract has a large connection to perceived promises (Roehling 1997; Rousseau 1989). Past experiences and self-efficacy will influence the psychological contract through molding the ideas of the individual. For example, positive experiences with online courses and knowledge of the computer software encompassed with the demands of the course structure create a positive psychological contract.

Social Presence

Social presence has been defined as a critical and influential framework in studying CMC (Gunawardena and Zittle 1997; Short et al. 1976; Spears and Lea 1992). Social presence is the degree to which the individual believes other individuals or members are physically present in mediated communication. Gunawardena and Zittle (1997) found that social presence is a strong predictor of satisfaction in a text-based computer conference and that the overall social aspect of CMC is important to the satisfaction of the task-oriented or academic computer conferences. Social presence was found to contribute 60% of the explained variance. Also, Stein and Wanstreet (2003) found no difference in perceived social presence of CMC and face-to-face collaborators. Cartwright (2000) also found that social presence is a strong predictor of satisfaction in a CMC format. This confirms that there is a strong positive relationship between social presence and CMC to determine a student's satisfaction of the distance learning context.

Computer-Mediated Communication

Student's interaction with technologies has been cited as one of the critical dimensions of online communication because student's interface with instructional contents, peers, and the instructor facilitate a high learning environment and allocate high performance and satisfaction ratings throughout the course (Hillman, Willis and Gunawardena 1994; Yoon 2003). CMC is when an individual or group has the capability of communicating (text, graphics, emoticons, etc.) through the use of technology. Gunawardena & Zittle, (1997) has defined CMC as a "group-based learning environment where the teacher's role is more of a facilitator than the main source of information." CMC can be asynchronous or synchronous context or both. An environment that combines both contexts is an online environment that fosters learning and growing among the students.

Proposition 3: A positive psychological contract mediated through perceptions of high social presence will increase CMC contributions.

Social Influence

Social influence is the action or event that motivates the individual to participate or not participate in CMC. The concepts of social presence and interactivity by Rafaeli (1988; 1990) interject the ideas of social influence as the action or "interactivity". Short, Williams, & Christie (1976) defined "interactivity" as the actual quality of communication sequence. In this context, social influence is the "interactivity" or when the group members or individual peers motivate or discourage CMC participation within the online environment. Bandura (1986) postulates that a role model positively influences innovation adoption. Social influence or "interactivity" presented by peers and the instructor may inhibit or promote the use of CMC affecting the overall satisfaction of distance learning. If the individual retains this experience as a negative, it may continually affect the individual's want to participate in online environments. Although if the social influence is positive, an increase in the CMC will reflect a high satisfaction in the distance learning context and eventually influence other forms of online activity.

Proposition 4a: The positive perception of the social influence of others (i.e., peers, instructor) will moderate the relationship between the student's psychological contract and increase CMC contributions.

Proposition 4b: The negative perception of social influence of others (i.e., peers, instructor) will moderate the relationship between the student's psychological contract and decrease CMC contributions.

Satisfaction

Students' chat room activity can become a valuable tool for assessing and predicting students' involvement in the virtual classroom (Wang and Newlin 2001). It has been demonstrated that satisfaction can be predicted by social presence (Cartwright 2000; Gunawardena and Zittle 1997; Stein and Wanstreet 2003), social influence (Bandura 1986; Wang and Newlin 2001), and past experiences (Wang and Newlin 2001) in a CMC environment. Prior experiences in addition to self-efficacy and course structure help to develop the individual psychological contract. Furthermore, it predicts satisfaction through the mediation of social presence and moderation of social influence in relation to CMC. Therefore, satisfaction is a viable outcome of the individual's psychological contract within an online distance learning environment.

Proposition 5: Students who make more CMC contributions will be more satisfied with the distance learning experience.

FUTURE RESEARCH

The formulation of the psychological contract and its relationship with social presence, social influence, and CMC develop the level of satisfaction of student's in online environments. The first goal in future research will be to develop data that supports the model.

Another important issue is the individual differences construct. A limited (e.g., none) or low level of self-efficacy in a distance-learning context may create interesting results on the student's psychological contract and outcome of the course. Other individual differences of interest are personality, age, and educational level.

PRACTICAL IMPLICATIONS

Applying the model in this paper to organizations and corporate training programs will reveal interesting thoughts on how to develop appropriate individual and group-oriented psychological contracts. Positive relationships between the employer and the employee will develop a mutual obligation between the organization and the employee (i.e., psychological contract), cultivating an environment that contributes to a satisfied relationship.

With the continual advancement of technology and education, the understanding of how individuals can receive the most out of the distance learning process is a necessary evil. Universities and educational institutions may use the findings of this model to develop their online courses to an audience who will appreciate, benefit, and be satisfied with the level and effort placed into each course.

CONCLUSION

The design of the model attempts to bridge the gap between student expectations and the learning outcome. In technology, many only see bar codes or zeros and ones. With software applications and graphical user interface, people can communicate with each other and provide a world of intimacy and immediacy from across the world. While students today may enjoy the face-to-face encounter, we are learning that the online environment can provide as much reality as the physical closeness of a person in the same room. Both social presence and social influence exist over CMC technology with use of words, graphics, and even audio. In conclusion, prior experiences and the context of the course are small bases for the psychological contract, the psychological contract is allowed to expand, grow and determine the truth or motivation of the course and their peers in the environment.

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