Developing A Community Of Practice Through Learning Climate, Leader Support, And Leader Interaction

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ABSTRACT

The Communities of Practice (CoP) concept and the knowledge management literature both provide useful frameworks for conceptualizing how an individual's performance in the classroom (e.g., earning a grade) or in an organization (e.g., solving a client's problem) can be supported by a collection of other individuals performing similar tasks and pursuing similar goals. When individuals in a CoP report high levels of meaning, involvement, identification, and belongingness to the community (Wenger, 1998) the individuals act "as resources to each other exchanging information, making sense of situations, sharing new tricks and new ideas, as well as keeping each other company and spicing up each other's working days" (Wenger, 1998, p. 47). In this paper, we report the results of a study that identifies three factors (learning climate, leader support and leader interaction) that impact the development of a CoP. Specifically, among a sample of 94 undergraduate business students in two cohort groups participating in a year-long program, we found that meaning and involvement were related to leader interaction in a positive manner, identification was related to leader support and CoP climate in a positive manner, and belongingness was related to leader support and leader interaction in a positive manner. Implications are presented for practitioners and educators who wish to facilitate the development of a Community of Practice.

Keywords: community of practice; learning theories; integrated curriculum; behavioral; cognitive; social learning

INTRODUCTION

*G*iven the increasing complexity of business problems, much attention has been given to understanding the factors that impact organizational learning and knowledge sharing (e.g., Zboralski, 2009). While many theories (e.g., Piaget) describe learning as a process of transferring knowledge from teacher to learner or as a relatively solitary process of acquiring knowledge, social constructivist theories and the community of practice literature provide different views. These theories describe learning as an active, participatory, collective process of constructing (and sharing) knowledge in a social context. Such views of learning suggest developing teaching or training programs that combine traditional content-driven techniques (e.g., lectures, practice problems, reading assignments) with activities and practices that facilitate social interaction among learners and leaders.

Wenger's (1998) community of practice model captures key elements of both the acquisition-based and social-based approaches to learning and knowledge creation. Other research on communities of practice in the workplace and in higher education has identified a number of positive outcomes from developing communities of practice (e.g., Brown & Duguid, 1991; Kimble, Hildreth & Wright, 2000; Janson, Howard & Schoenberger-Orgad, 2004; Schenkel & Teigland, 2008). For example, in addition to developing explicit and tacit knowledge, a community of practice becomes a collection of people that possesses four key characteristics: 1) a sense of meaning gained through common experiences, 2) a sense of belonging, 3) a shared identity, and 4) engagement or

involvement. To understand how leaders might facilitate the development of these characteristics, we can look to social learning theories.

LEARNING THEORIES

While a variety of learning theories exist, and each theory offers some insight into the practice of learning and teaching, social theories in particular share some characteristics of two well-accepted learning theories, namely, behaviorism and cognition. Behaviorist learning theories propose that the process of teaching focuses on breaking information and skills into small units of context-free content and providing regular feedback to students to help shape behavior. For example, if successfully recalling key dates in history or performing a series of math problems is followed by a positive reward (e.g., praise) the behavior (e.g., recalling dates) is reinforced. Thus, from the behaviorist's perspective teaching and learning is a process of changing and shaping observable behavior. There is no attention given to internal processes occurring in the mind.

In contrast, cognitive learning models focus on how the brain processes and maps or builds information. The mind is viewed as a cognitive architecture characterized by short-term visual and auditory sensory 'stores' for inputting information from the environment, a short-term memory with limited capacity (or working memory), and a long-term memory with unlimited capacity. In this manner, inferences (or knowledge bases) are generated via an internal mental model to which rules can be applied. Processing follows a sequential format: information from memory is operated on, transformed, and returned to memory. Learning in this framework takes place when information is processed through short-term memory and is held in long-term memory in the form of highly structured and organized schema (Anderson, 1990). At early stages of skill development (e.g., learning to drive a manual transmission car) we rely on sequential, declarative statements (e.g., push in clutch, put car into first gear, etc.). With practice, we build a series of if/then statements that are stored in the long-term memory. Individuals who acquire mastery of a procedure rely on retrieving these if/then statements from long-term memory, and each time an "if" is met the "then" brings another if/then statement from long-term store.

Social learning theories (e.g., Bandura, 1997) combine and extend these behaviorism and cognitive learning models. For example, while behaviorist theories suggest that learning takes place when the learner associates consequences with the learner's behavior, social learning theories suggest that individuals can learn from observing others receive consequences. Direct experience with the consequence is not necessary. In addition, because changing behavior is not a necessary condition of social learning, the theory suggests that observation influences cognitive processes, creating an expectation of consequences for a given behavior. In other words, social learning theories focus on the roles of observation, imitation and modeling in changing mental structures and behavior (Bandura, 2001). For managers and educators, the focus, therefore, becomes one of creating an environment that provides opportunities for observing appropriate behaviors and one that supports and encourages modeling and imitation. Wenger's characterization of communities of practice is a useful framework for conceptualizing an effective social learning environment.

COMMUNITIES OF PRACTICE

A community of practice is an environment where knowledge is created, codified, and stored in a decentralized manner, shared among the community members, and applied to practice. Tacit knowledge emerges from the sharing of the knowledge from the continuous practice in the community. Proximity or a shared location helps sustain the community, but it is the involvement and engagement of the members that is critical to the effectiveness of the community. Connections with community members produce a collective practice. Trying, adopting, accepting, and rejecting practices creates associations of shared accountability critical to practice. Such behaviors as sharing so-called war stories, having informal discussions, and sending email messages form a collection of agreed upon information and techniques to be utilized by members of the group (Baker-Eveleth, Sarker, & Eveleth, 2005).

Wenger (1998, 2000) states that communities of practice or social learning environments exhibit four characteristics: 1) learning as a process of becoming a part of something (identification), 2) learning as a set of shared experiences that create a common understanding (meaning), 3) learning as a process of engagement or

learning by doing (involvement), and 4) learning as a process of attachment to the community (belongingness). Consistent with principles of social learning theories, we propose that leaders and educators play a critical role in the extent to which members of a community of practice identify with the community, develop a sense of meaning, exhibit a high degree of involvement in the community, and develop a strong feeling of belonging to the community.

METHODOLOGY

To investigate the role of social learning-oriented teaching programs on the development of a community of practice, we surveyed two class sections of students, for a total of 94, enrolled as cohorts in six modules of a year-long junior-level business course. The Integrated Business Curriculum (IBC) is a set of modules delivered by cross-functional faculty teams. Expertise represented in each faculty team includes human-resource management, information systems, finance, marketing, and production and operations management. The five business areas are taught in an integrated manner across six modules: team building, business systems, product and process planning, planning and decision-making, managing the firm's resources, and business operating decisions.

The faculty team meets with each cohort group in a fairly traditional classroom environment, three hours per day, three days per week for 30 weeks. The cohort groups simultaneously attend courses in economics, accounting, and spreadsheet modeling that while taught separately are coordinated with the primary IBC course. Additional hours are spent by the faculty team members interacting with the cohort groups (and individuals in the groups) outside the context of the traditional classroom through student-team mentoring meetings, presentation practice sessions, evening examinations, one-on-one advising and tutoring, and project debrief sessions. These "social" conditions provide a unique opportunity for the faculty to facilitate social learning practices and to observe the development of a community of practice.

We propose that a faculty team influences not only the extent to which individual students acquire knowledge (i.e., consistent with the recommendations of behaviorist and cognitive learning theorists), but also the extent to which the cohort groups develop into effective communities of practice (i.e., consistent with the recommendations of social learning theorists). For example, in addition to the development and implementation of traditional forms of teaching (e.g., lectures, practice problems, case analyses), the faculty teams plan and then perform behaviors in an attempt to foster a learning culture that encourages innovative/active learning, provides a sense of support for the learners, and facilitates interaction between the faculty and the students. We hypothesize that these faculty-orchestrated behaviors and the practice of them play a critical role in the degree to which a community of practice develops within each cohort.

The survey was administered electronically and examined 10 variables via a number of question items. Three variables (age, gender, and grade) accounted for three question items. The remaining seven variables (three social-learning variables of leader support, leader interaction and learning climate; four community of practice variables of identification, meaning, involvement and belongingness) were addressed by the other questions and were anchored by (1) strongly agree and (7) strongly disagree.

Leader support and leader interaction were measured using scales adapted from Pascarella and Terenzini (1980). The five items that measured leader support (e.g., *The IBC faculty members I have had contact with are generally interested in students; I can talk to the IBC faculty about my problems; the IBC faculty care about me*) exhibited strong internal consistency in this sample (i.e., Cronbach's alpha = 0.776). The three-item scale that measured leader interaction (i.e., *My non-classroom interactions with IBC faculty have had a positive influence on my 1) personal growth, values, and attitudes, 2) career goals and aspirations, and 3) intellectual growth and interest in ideas*) displayed a Cronbach's alpha of 0.868. The final measure of social learning practices (i.e., learning climate) was adapted from items used by Stone, Good and Baker-Eveleth (2007). Cronbach's alpha in this sample for the five-item scale (e.g., *My IBC team members. . . 1) encouraged me to find new ways around problems*, 2) *liked me to try new ways of doing things, talked up new ways of doing things*, 3) *encouraged me to improve upon our team processes*) is 0.909.

The measure for identification was adapted from items reported by Mael and Tetrick (1992). In previous studies the seven-item scale (e.g., *When I talk about my IBC team, I usually say "we" rather than "it" or "they"*)

exhibited internal consistency and concurrent validity (e.g., van Knippenberg & van Schie, 2000). Similar results were found in this study (i.e., Cronbach's alpha = 0.733). The measure for meaning was adapted from items reported by Pascarella and Terenzini (1980). The three items (i.e., *My IBC experience has had a positive influence on my intellectual growth and interest in ideas*; M*y interest in business issues and ideas has increased since starting IBC; I am more likely to pay attention to business events or topics in the news now that I completed IBC*) exhibited strong internal consistency (i.e., Cronbach's alpha = 0.831). The measure for involvement included four items (e.g., *I am very much involved personally in my role as an IBC student*; *I see my participation in IBC to be very central to my future*). Internal consistency was strong in this sample (i.e., Cronbach's alpha = 0.742). The fourth characteristic of a community of practice (i.e., belongingness) was measured by a four-item scale adapted from Bollen and Hoyle (1990). The items represented in the scale (e.g., *I feel a sense of belonging to IBC; I see myself as part of the IBC community*) exhibited strong internal consistency with a Cronbach's alpha of 0.846.

RESULTS

　　　　Descriptive statistics, Pearson correlations, and reliability estimates for each variable are shown in Table 1. The correlations between the three social-learning aspects of the program (i.e., learning climate, leader support and leader interaction) and the four characteristics of a community of practice (i.e., identification, belongingness, meaning, and involvement) were positive and significant, offering preliminary support for our expectations.

Table 1: Correlations and Descriptive Statistics for All Variables

Variables	Mean	s.d.	N	1	2	3	4	5	6	7	8	9	10
Age 1	20.71	1.22	96										
Gender 2	0.40	0.49	96	-0.19									
Grade 3	84.93	7.36	94	-0.27 (***)	0.12								
Learning Climate 4	3.99	0.71	96	-0.05	0.04	0.04	(0.91)						
Leader Support 5	3.79	0.56	96	-0.10	0.16	0.14	0.28 (***)	(0.78)					
Leader Interaction 6	3.80	0.71	96	-0.13	0.25	0.08	0.50 (***)	0.39 (***)	(0.87)				
Identification 7	3.85	0.54	96	-0.24 (**)	0.03	0.29 (***)	0.34 (***)	0.49 (***)	0.34 (***)	(0.73)			
Belongingness 8	3.79	0.64	96	-0.07	0.13	0.13	0.30 (***)	0.50 (***)	0.44 (***)	0.49 (***)	(0.85)		
Meaning 9	3.91	0.85	96	-0.03	0.02	0.09	0.24 (**)	0.30 (***)	0.43 (***)	0.40 (***)	0.54 (***)	(0.83)	
Involvement 10	3.67	0.69	96	-0.21 (*)	0.17	0.14	0.26 (**)	0.35 (***)	0.56 (***)	0.51 (***)	0.59 (***)	0.61 (***)	(0.74)

Note: The table reports mean and standard deviation (s.d.) values, and correlations. The ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. The Cronbach's Alpha for each of the scales is reported in parentheses. *Grade* refers to a percentage (i.e., 0 to 100). *Gender* is a dummy-coded variable that represents maleness (0 = male, 1 = female).

　　　　To assess the extent to which social-learning practices contribute to the development of a community of practice, we separately regressed the four characteristics of a community of practice on the three social-learning variables. Table 2 presents the results when identification is the dependent variable. Learning climate, leader support and leader interaction accounted for unique variance in identification beyond the control variables ($\Delta R^2 = 0.25$, $p \leq 0.01$). The relationships between identification and learning climate and leader support were significant and positive (i.e., ß = 0.15, $p \leq 0.10$, ß = 0.36, $p \leq 0.01$, respectively), offering some support for our hypotheses.

Table 2: Hierarchical Regressions of Identification on Leader Support, Leader Interaction and Learning Climate

Variables	β	R	R²	ΔR²
Identification: Step 1		0.34***	0.12***	
Age	-0.09*			
	(0.05)			
Gender	-0.06			
	(0.1)			
Grade	0.02 **			
	(0.01)			
(Constant)	2.78***			
	(0.77)			
Identification: Step 2		0.61***	0.37***	0.25***
Age	-0.08*			
	(0.04)			
Gender	-0.15			
	(0.10)			
Grade	0.02 **			
	(0.01)			
Learning Climate	0.15*			
	(0.08)			
Leader Support	0.36***			
	(0.09)			
Leader Interaction	0.07			
	(0.08)			
(Constant)	0.97			
	(0.73)			

Note: The table reports beta coefficients and heteroskedasticity-robust standard errors (in parentheses) for a sample size of 94. The ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 3: Hierarchical Regressions of Belongingness on Leader Support, Leader Interaction and Learning Climate

Variables	β	R	R²	ΔR²
Belongingness: Step 1		0.17	0.03**	
Age	-0.02			
	(0.06)			
Gender	0.13			
	(0.14)			
Grade	0.01			
	(0.01)			
(Constant)	2.91***			
	(0.95)			
Belongingness: Step 2		0.57***	0.33***	0.30***
Age	0.00			
	(0.05)			
Gender	-0.01			
	(0.12)			
Grade	0.01			
	(0.01)			
Learning Climate	0.06			
	(0.10)			
Leader Support	0.43***			
	(0.11)			
Leader Interaction	0.24**			
	(0.10)			
(Constant)	0.65			
	(0.89)			

Note: The table reports beta coefficients and heteroskedasticity-robust standard errors (in parentheses) for a sample size of 94. The ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4: Hierarchical Regressions of Involvement on Leader Support, Leader Interaction and Learning Climate

Variables	β	R	R^2	ΔR^2
Involvement: Step 1		0.27*	0.07*	
Age	-0.10			
	(0.07)			
Gender	0.18			
	(0.15)			
Grade	0.01			
	(0.01)			
(Constant)	3.16***			
	(0.99)			
Involvement: Step 2		0.60***	0.36***	0.28***
Age	-0.07			
	(0.06)			
Gender	0.00			
	(0.13)			
Grade	0.01			
	(0.01)			
Climate	-0.04			
	(0.10)			
Leader Support	0.19			
	(0.12)			
Leader Interaction	0.48***			
	(0.10)			
(Constant)	1.11			
	(0.93)			

Note: The table reports beta coefficients and heteroskedasticity-robust standard errors (in parentheses) for a sample size of 94. The ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 5: Hierarchical Regressions of Meaning on Leader Support, Leader Interaction and Learning Climate

Variables	β	R	R^2	ΔR^2
Meaning: Step 1		0.09	0.01	
Age	-0.00			
	(0.08)			
Gender	0.00			
	(0.19)			
Grade	0.01			
	(0.01)			
(Constant)	3.06**			
	(1.26)			
Meaning: Step 2		0.47***	0.22***	0.21***
Age	0.03			
	(0.08)			
Gender	-0.19			
	(0.18)			
Grade	0.01			
	(0.01)			
Learning Climate	-0.02			
	(0.14)			
Leader Support	0.24			
	(0.16)			
Leader Interaction	0.47***			
	(0.14)			
(Constant)	0.80			
	(1.26)			

Note: The table reports beta coefficients and heteroskedasticity-robust standard errors (in parentheses) for a sample size of 94. The ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

When belongingness was regressed on learning climate, leader support and leader interaction (see Table 3) the set of three social-learning variables also explained unique variance in belongingness after controlling for age, gender and grade ($\Delta R^2 = 0.30$, $p \leq 0.01$). The relationships between belongingness and leader support and leader interaction were significant and positive (i.e., ß = 0.43, $p \leq 0.01$, ß = 0.24, $p \leq 0.05$, respectively), offering some support for the expectation that social-learning practices play a positive role in developing a community of practice.

When involvement was regressed on learning climate, leader support and leader interaction (Table 4) the set of three social-learning practices explained unique variance in involvement over and above the control variables ($\Delta R^2 = 0.28$, $p \leq 0.01$). The relationship between involvement and leader interaction was significant and positive (i.e., ß = 0.48, $p \leq 0.01$). This offers some support for the expectation that social-learning practices or behaviors play a positive role in developing a community of practice.

Last, when meaning was regressed on learning climate, leader support and leader interaction (Table 5) the set of three social-learning variables explained unique variance beyond the control variables ($\Delta R^2 = 0.21$, $p \leq 0.01$). The relationship between meaning and leader interaction was significant and positive (i.e., ß = 0.47, $p \leq 0.01$). This offers some support for our propositions.

DISCUSSION

Faced with a world of complex problems and opportunities, organizations are challenged to identify interdisciplinary solutions and rely more heavily on managing knowledge creation and sharing. And because knowledge is often tacit in nature, thus contained in the memories and experiences of individuals, organizations must attempt to capture what they can (i.e., make the knowledge explicit) and work to develop or facilitate knowledge networks (i.e., keep some knowledge tacit, but connect individuals through a network). The communities of practice concept provide a useful framework for understanding why and how knowledge is shared among individuals in a network (Wenger, 1998), but research on the factors that impact the development of communities of practice is still somewhat limited (Zboralski, 2009). While it is accepted that communities of practice facilitate or encourage knowledge sharing, less is known about factors that lead to the development of communities of practice. In this study, we have taken some initial steps to answer these open questions. The conditions that existed in this study's sample provided a unique opportunity to evaluate the extent to which social-oriented learning practices played a role in the development of group characteristics that facilitate learning and knowledge sharing.

Wenger (1998) suggests that communities of practice exhibit four characteristics. Specifically, individuals in a community of practice feel an attachment or sense of belonging to the community that reinforces the value or importance of participation in the community. Second, individuals' personal identity becomes more in line with the community as shared experiences create a common view toward who the members are and what they value. Third, individuals in a community of practice believe that participation in the community has led to meaningful changes in their abilities. Finally, individuals in a community of practice are more involved, taking action and learning by doing. In this study, we found that leader support has a positive effect on identification and belongingness, climate has a positive effect on identification, and leader interaction has a positive impact on belongingness, involvement and meaning. While it may be an oversimplification to say so, it is possible to conclude from the results of this study that *supportiveness* (i.e., climate and leader support) plays a critical role in the formation or development of attachments with the community (i.e., identification and belongingness) and that *interaction* with the leader plays a central role to the extent that members take action as a result of their membership or see the value of taking action in the future.

AUTHOR INFORMATION

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