

Social Learning from Virtual Collaboration: A Conceptual Framework

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Humans adapt to different forms of learning as environments change. Human Resource Development (HRD) must grow with these changes in order to remain useful. With electronic technology ever-present in most human life, technological advances have reformulated the application of communication tools. HRD is poised to give future generations a clearer view of how learning may differ when technology is applied. This conceptual article offers a newly formed position labeled technology-enhanced social learning (TESL). This concept suggests that the basics of 'meaning' could form differently in a virtual setting.

INTRODUCTION

According to Bennett (2010), technology plays a critical role and is essential in the evolution of Virtual Human Resource Development (VHRD). This critical building block is profound yet permeable as Bennett describes technology as offering, “greater speed, efficiency, and connection across space and time” (p. 730). However, she adequately points out that this critical element can often be seen as “cold and insensitive” when compared to the “richness of the human element” (p. 730). Understanding how adults learn in a virtual setting is critical for the field of HRD. As Bennett and Bell (2010) suggested, understanding how we learn in this setting may even be more critical today, based on increased economic drivers. In order to move toward a greater understanding of learning in the virtual setting, this paper offers a new conceptual model.

Based on work from Lois Holzman’s interpretations of Vygotsky’s ‘zone of proximal development’ (ZPD) (Holzman, 2006) and Derrick Cogburn’s work on collaboration, I present a newly focused complimentary perspective on social learning construction through the use of technology. This framework is proposed by extending Holzman’s ‘collective activity’ through partially utilizing Cogburn’s research on virtual team creation in South Africa (Cogburn, 2008). In support of this conceptual proposal it is important to note that according to Ardichvili (2008), the “transfer of knowledge across cultural boundaries creates additional challenges for collaborative learning in multinational and global organizations” (p. 546). The result is a conceptual model referred to as ‘technology-enhanced social learning’ (TESL).

Theoretical Underpinnings

The foundational theories used to form this model stem from the lens of Lave and Wenger’s ‘communities of practice’ (COP) (1998), Vygotsky’s ‘zone of proximal development’ (1978), and Cogburn’s collective work on virtual laboratories (2008). Lave and Wenger used more than the community of practice to understand the social theory of learning. Their ideas on learning involved the

holistic body of social learning as interconnected. As referenced in Figure 1, the social theory of learning expresses multiple points of interaction between learning and the environment.

FIGURE 1
REPRESENTATION OF WENGER'S SOCIAL LEARNING THEORY



Wenger (1998) defined these components of social learning as an initial inventory. From this inventory, he surmised meaning, practice, community, and identity as the social learning components necessary. He suggested that *communities of practice* are always present and learning takes place constantly. The virtual setting is at many times socially constructed and often requires effort to establish in many organizations. These settings are not always required to formally deliver activities and instead can serve to be true collaboratories. In these settings, learning is constant and situated as a way of daily life as suggested by Wenger (1998) as an ingredient to be involved in *communities of practice*. Further analysis of Wenger's model is required to more fully explain TESL.

In addition to Lave and Wenger's (1998) COP, Vygotsky's zone of proximal development is also used to form the foundation of TESL. ZPD is formed within the boundaries of the cultural historical development theory (CHDT) developed by Vygotsky (1978) which suggests that social interaction leads to the development of an individual's consciousness and cognition. Vygotsky (1978) proclaimed that human development is a collective learning process formed through thinking, language and symbols that promote higher learning. He suggested that within this theory people learn as they participate in social settings. Vygotsky synthesized his theory within his genetic law of cultural development by stating:

any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category (Vygotsky, 1978, cited in Wertsch, 1990, p. 113).

ZPD exists, according to Vygotsky (1978), within the cultural development theory and is defined as spaces are emergently created to mediate learning and development processes (Moll, 1990). According to Holzman (2006), ZPD measures both fully developed functions and those that are in a state of maturing into individual learning. Through the postmodernist lens of Holzman (2006), this perspective promotes a progressive conversation where individuals can impact both social and historical contradictions through collective action. In this worldview, Vygotsky's ZPD serves as an instrument for learning and promotes individual action to a collective activity (Holzman, 2006).

Framework Focus

The focus of this theoretical framework lies within the boundary of the 'community' identified within Figure 1. To further define the a virtual setting appropriately or *virtual community of practice* (VCoP) (Von Wartburg, Rost, & Teichert, 2006), Ardichvili (2008) described the setting as, "virtual teams are usually created by organizations to achieve specific performance goals, VCoPs are organized around community members' common interests, but, as a rule, are not working toward achieving specific performance goals" (p. 542). This conceptual work does not prescribe to define the difference between a formal performance goal setting or common interest setting. However, this framework does suggest that learning is individually- based and learning can take place in lieu of the setting focused on formalized goals. Wenger (1998) suggested that the communities of practice perspective on learning is individually based (Wenger, 1998) while Vygotsky's zone of proximal development (ZPD) was structured on interactions between individuals as they receive help from one another (Holzman, 2006).

Vygotsky's ZPD presented learning from an internal framework and is formed based upon interactions with others (Wertsch, 1996). He described the basic idea of speech as an internal function within a human that later becomes solidified due to the interaction with other people (1996). This connection with the social setting or community points to Wenger's communities of practice (COP) and folds into social learning the foundation of collaborator- based social interaction. Interaction in the collaboratory is virtual and separated by distance while utilizing the human voice as the pronounced form of communication.

Work by Cogburn (2008) during virtual team collaboration in South Africa presented at least two major advantages over face-to-face communication. These advantages were noted as 1) learning how to communicate with teammates that were geographically dispersed, and 2) learning about the advantages of technology in the work setting (2008). These advantages, when coupled with Vygotsky's ZPD, hold common ideas of constructed ways of knowing. By using Crotty's (1998) epistemological perceptive of constructionism, whereby meaning is constructed through interaction between subject and object, this framework assumes that meaning will be created through interaction by way of technology. Through this perspective, according to Crotty (1998), meaning is not discovered, rather is constructed and in this perspective the object-subject forms a relationship which come together to form meaning. Community connects the individuals as both helpful singular and collective entities. The entities form communities of practice among their respective collectives and in parallel to other groups with similar settings. This setting produces a *new social learning construction* that is independent of face-to-face interaction.

PROPOSED CONCEPTUAL FRAMEWORK

The proposed framework for TESL builds a bridge between the collaborator and virtual social interaction. This measurement is currently unknown and based on the level of social interaction; learning can be determined by pre and post interviews. The TESL model, as illustrated in Figure 2, builds upon Vygotsky's assertion that what one can learn by herself is different than one can learn with others (Holzman, 2006). This basic tenet suggests that interaction plays a part in learning. Virtual interaction is not identical to face-to-face interaction and, as such, Ardichvili (2008) correctly pointed out "the technology, used in VCoPs, should be treated not just as a tool, but also as an important influence on community's identity, character, and patterns of behavior" (p. 549). The technology connecting the social

interaction together becomes its very lifeline for the community that has formed. These critical factors replace the social setting to reflect an entirely different community from which to operate and learn.

FIGURE 2
TECHNOLOGY ENHANCED SOCIAL LEARNING THEORY (TESL)

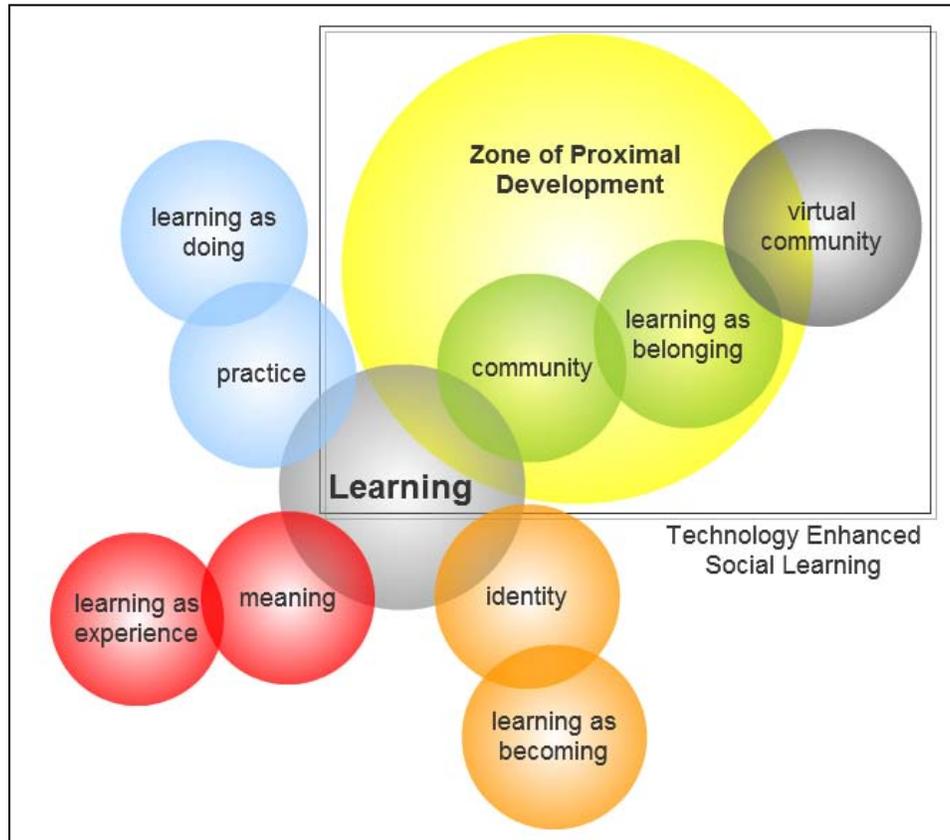


Figure 2: Adapted from Wenger (1998) and Vygotsky (1978)

Virtual settings are no longer new environments for many organizations. However, the idea of learning from within these settings is still in its infancy. For example, speaking over the telephone has recently been examined for learning, understanding, and even group feelings (Aborisade, 2012; Heilmann, 2012). The implications of this new lens of TESL brings about several different concepts of learning and more importantly new ideas for practice on social learning construction.

According to Mezirow (2006), learning, specifically communicative learning, relates to understanding what someone means when they communicate with the intended receiver. TESL presents a new contextual perspective of learning that is established entirely within the virtual world of communications. Beyond verbal inflection, the receiver has very little information from which to form the social learning environment.

I suggest that social learning construction is different between face-to-face and virtual collaboration based upon the communication setting and that learning is greatly impacted by the influence of ZPD. Based on this suggestion, it is possible to imply that the human experience of social learning could be very different and even require a more postmodern lens to grasp the idea of social learning based upon the lack of human face-to-face interaction.

Theory

Vygotsky's ZPD presents an unusual situation for the virtual setting. Holzman notes that Vygotsky's work on gestures in the social setting give meaning to the act (Daniels, 1996). This is complex within the virtual social setting due to the lack of human face-to-face connection. Unless the virtual collaboration is video based, witnessed gestures are no longer discernible behavior markers. ZPD provides more perspectives from Vygotsky that suggests that the acts of one person can change based on the acts of another person's help (Holzman, 2006). This is where TESL makes a solid and qualitative connection. The act of help does not need to be physically delivered between individuals and may virtually be cognitively accomplished. Connecting to Wenger's communities of practice creates a qualitative measurement of the social learning setting.

Lave and Wenger's 'communities of practice' draws upon social experience and connectivity to form theory (1998). Their ideas on experience present a challenge to TESL. However, the social context from which communities of practice are formed allow for the theory to be applied. Collaboratories exist due to the need for connection across geography. These communities provide a structure that promotes social connectivity on a different level than what Lave, Wenger, and Vygotsky intended. From these two theoretical lens I submit the 'technologically enhanced social learning' framework and suggest mixed method research to understand the relevance of learning across multiple disciplines. Research data should be used as the basis for continued study on postmodern perspectives of what learning is, means, and how it is achieved.

Research

Research of TESL would be conducted in both qualitative and quantitative forms. Survey's would be given to participants of the virtual setting to determine if typical forms of learning have taken place after the interaction. Interviews would be conducted to determine if understanding was both sent and received. Coding results from the interviews would form a basis for a subjective perspective, which could move the researcher closer to a theoretical understanding of social learning in a technology-enhanced environment.

Practice

The implications to practice could be far reaching. As McWhorter (2010) suggested, "people have connected to, through, and within technology, it has become more representative of real-time human communication and interaction" (p. 629) illuminating that new technologies are inching closer and closer to mirroring human face-to-face connections. While the current idea of virtual is in complete opposition to human in-person presence, the ideas of future practice could include sense replication variables such as; texture based, olfactory based, or sound based interactions to mirror human presence (Fazarro & McWhorter, 2011). While these seem far-fetched currently, they serve to provide as markers for TESL based ideas of knowing and meaning. When and if these forms of communications become real, a measurement could be taken of a tangible item that creates a measurable physical human feeling. This would point to a measurable difference between a socially constructed face-to-face environment and one that is enhanced by technology.

Further, the implications of TESL on the practice of education could be significant. For example, somatic learning refers to the body's impact on learning (Clark, 2001). It has been suggested that learning occurred "simply [when] mental processes caught up with what [the] body already knew" (Clark, p. 86). Weiss (2001) added that "our minds and bodies work together to help us pay attention, solve problems, and remember solutions" (p. 63). Somatic learning refers to the internal connectivity between body and learning. Greater analysis of somatic learning effects within a virtual setting may be required to gain understanding of the difference between virtual and face-to-face mind-body learning capabilities.

Social cognitive learning suggests that specific characteristics create specific situations of the group and at the time of learning can affect the learning experience (Bandura, 1999). This idea of learning could also be extended. Based on TESL, social settings have changed to include new phenomena not easily measured and only relevant to virtual settings. The experiences obtained by each member of the virtual

community are likely to be very different since each individual's setting will be completely different although connected virtually at the collective level.

Practical Implications

TESL's applications could be applied to those environments structured to be completely independent of face-to-face meetings. These social environments could be permanently assigned a virtual state with no opportunity of the participants meeting. In-person connections would invalidate the research and therefore affect the underpinnings of the theory. Such purely structured social environments are possible today with more reliance on virtual work groups due to improved technologies and defunding efforts within the global commerce space.

This theory is intended to form a more postmodern perspective on a modern measurement system and learning theory. Its application suggests future development of human-like environments with a virtual structure and platform. By application, this is currently not practical. However, future use would be sustainable pending technological advances of basic human sensory understanding.

NEXT STEPS FOR TESL FRAMEWORK

The purpose of this framework is to gain a greater understanding of the influence that virtual technology use and application has on social learning. Due to the various means of measuring the virtual interaction between people, a research question can be formulated that is broad enough to encompass all settings of non face-to-face interaction. For example, a primary research question guiding this framework might be: *Do virtual electronic laboratories form societies that promote social learning?*

Potential Variables and Operationalizing

It is reasonable to suggest technology-enhanced social learning could be gathered from subjects participating within collaboratories. Individuals could be interviewed on a subject area before and after a prescribed duration of time via a virtual method. In this event, no subjects would be allowed to communicate with one another in person and all participants would be asked, both before and after the virtual interaction, of what they hope to learn and what they learned. Subjective and objective methods should be used to measure those indicators that require interviews to fully appreciate. Synthesized coding of gathered interviews will enable the researcher to form TESL by providing measurable and collective empirical data.

REFERENCES

- Aborisade, O. P. (2012). Telephone: The old technology that is never old. *International Journal of Emerging Technologies in Learning*, 7(3), 54-58. doi.org/10.3991/ijet.v7i3.2132.
- Ardichvili, A. (2008). Learning and knowledge sharing in virtual communities of practice: Motivators, barriers, and enablers. *Advances in Developing Human Resources*, 10(4), 541-554.
- Bennett, E. E. (2010). The coming paradigm shift: Synthesis and future directions for virtual HRD. *Advances in Developing Human Resources*, 12(6), 728-741. doi: 10.1177/1523422310394796.
- Bennett, E. E., & Bell, A. A. (2010). Paradox and promise in the knowledge society. In C. Kasworm, J. Ross-Gordon, & A. Rose (Eds.), *Handbook of Adult and Continuing Education* (pp. 411-420). San Francisco, CA: Jossey-Bass.
- Clark, M. C. (2001). Off the beaten path: Some creative approaches to adult learning. *New Directions for Adult and Continuing Education*, 89, pp. 83-91.
- Cogburn, D. L. (2008). *Teaching globalization, globally: a 7 year case study of South Africa-U.S. virtual teams*. MIT Press, vol. 4, 75-88.
- Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. Thousand Oaks, CA: Sage.

- Daniels, H. (1996). Holzman, L. taken from *Pragmatism and dialectical materialism in language*. An Introduction to Vygotsky. (pp. 53-74). London: Routledge.
- Fazarro, D., & McWhorter, R. (2011). Leveraging green computing for increased viability and sustainability. *The Journal of Technology Studies*, 37(2). Retrieved from <http://scholar.lib.vt.edu/ejournals/JOTS/v37/v37n2/fazarro.html>
- Heilmann, S. G. (2012). Can you hear me now? Assessing students' classroom communication preferences via a telephone conference activity. *Journal of Educators Online*, 9(1), 1-15.
- Holzman, L. (2006). Activating Postmodernism. *Theory and Psychology* 16(1). pp.109-123.
- McWhorter, R. R. (2010). Exploring the emergence of virtual human resource development. *Advances in Developing Human Resources*, 12(6), 623-631. doi: 10.1177/1523422310395367.
- Mezirow, J. (2006). An Overview of Transformative Learning. In K. Illeris (Ed.) (2009), *Contemporary Theories of Learning* (pp. 90-105). London: Routledge.
- Von Wartburg, I., Rost, K., & Teichert, T. (2006). The creation of social and intellectual capital in virtual communities of practice: Shaping social structure in virtual communities of practice. *International Journal of Learning and Change*, 1(3), 299-316.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University.
- Weiss, R. P. (2001). The mind-body connection in learning. *Training & Development*, 55(9) 60-67.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity*. Cambridge, MA: Harvard University Press.
- Wertsch, J. V. (1990). The voice of rationality in a sociocultural approach to mind. In Moll, L.C. (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical Psychology*. (pp. 111-126). New York, NY: Cambridge University Press.
- Wertsch, J. V., & Tulviste, P. (1996). L.S. Vygotsky and contemporary developmental psychology. In H. Daniels (Ed.), *An introduction to Vygotsky* (pp. 53-74). London: Routledge.