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Section I. Introduction

Individuals and communities construct knowledge through their interpretations of how the world is (Senge, 2005) (Glaserfeld, n.d.) (Fosnot & Stewart, 2005). They produce outcomes by constructing knowledge for the organizations they work for. Their interpretations emerge from their sensory-motor system which includes their senses, acting and thinking (Glaserfeld). People code and decode all experiences through the use of language. By verbally sharing interpretations among one another, individuals construct knowledge together through social interactions (Senge, 2005). Communities create metaknowledge by unifying their individual values, cultures and meanings when combining abstraction, local concepts, and agreements (Gardner, 2005). By sharing their visions, individuals are also sharing their interpretations and constructing knowledge (Senge, 2008).

Our knowledge mirrors our mind which is limited to three dimensions: width, length and depth. In mathematics class, we are taught about the X, Y and Z axes which are perpendicular to one another and create 90 degree angles where they meet. Mathematically, we can work in infinite dimensions. Individuals, however, have limitations that can create paradigms and encapsulate their realities. By sharing dreams and goals, communities learn to construct knowledge by allowing perspectives to emerge (Senge, 2005) (Fosnot & Perry, 2005), thereby creating new realities with fewer limitations.

This paper has been organized in five sections. Section I introduces the topic, the paper's thesis, and its organization. Section II describes the equilibrium theory proposed by Fosnot and

Perry (2005), sharing individuals' mission (Senge, 2005), and developing a disciplined mind (Gardener, 2005). This research describes how individuals and communities construct knowledge by sharing their meanings when connecting to their disciplined mind. Section III describes my experience as a facilitator. When I teach students they construct knowledge, and connect constructivism theory into practice. Constructing a common goal does not mean my students are equally instructed. In fact, they are different in understanding the meaning of the HIV information. Section IV concludes and makes recommendations.

## Section II. Updating our knowledge by sharing our visions

This section has been organized into three subsections. The first addresses the equilibrium theory by Fosnot & Perry (2005), which focuses on how learners create knowledge based on new or previous knowledge. The second subsection explains the shared vision proposed by Senge and has been adapted for the HIV community at West Side Community Health Services' (WSCHS) La Clinica. Lastly, the third subsection describes the disciplined mind proposed by Gardener, also adapted for the HIV community.

### *The equilibrium theory.*

Humans' cognitive behaviors differ depending on whether they focus on science or religion. Religious individuals and communities believe God created knowledge in their minds and there is no need to calibrate the accuracy between their perspectives and the real world. Scientific individuals and communities apply the cognitive equilibration when they interact socially, develop and update knowledge (Fosnot & Perry, 2005) (Senge, 2008). Assimilations consist when individuals capture a new idea. By accommodating, individuals and communities

connect with each other and share their interpretations. As a consequence, individuals update their meanings by changing previous information and accommodating a new one. By contradicting previous idea, individuals realize that the knowledge they have does not work with their realities. As a consequence they remove their old perspectives and replace with a new one. Perturbation occurs when communities and individuals are assimilating and accommodating their representation of ideas. When individuals and communities acquire new knowledge they assimilate it, and when they modify ideas, or change previous information it is accommodation. According to Fosnot and Perry (2005), learning reduces perturbation. I argue perturbations can produce new perturbations which reflect constant social interchanges of ideas among individuals and communities. Perturbations explode into several accommodations and assimilations of knowledge which can impact individuals' behavior and thinking.

According to Fosnot and Perry (2005), learning reduces perturbation. However, I argue that perturbations can produce new perturbations which reflect constant social exchanges of ideas among individuals and communities. Perturbations explode into several assimilations and accommodations of knowledge which can impact individuals' behavior and thought process.

According to Cobb (2005) perturbations occur when individuals socialize with each other, negotiating with others' meanings. The equilibrium applies three actions performed by individuals and communities: 1) assimilating new knowledge by interacting with communities, individuals accommodate knowledge by integrating their thinking and behavior when sharing interpretations; 2) by contradicting their thinking, individuals realize what they think does not work and a need develops to accommodate or modify previous structures; and 3) by unifying and organizing the systems of thought, individuals are integrating knowledge. For example, a train in

motion can be viewed by both passengers and outside observers. The people inside the train do not see it moving along the tracks, but the people outside the train do. Both groups of people understand the static system is different for the same event. When they realize which system is in movement, they recognize a conflict exists among their interpretations of the same event. By socializing with one another, they assimilate and accommodate each others' perspectives. This process is dynamic and not linear. Both systems are in movement, but some individuals think the train is in movement according to the stable earth. However, earth is also in movement according to the universe proposed by the astronomers' perspectives. By sharing their visions, individuals can accommodate, contradict and assimilate their interpretations about the same event (Senge, 2008) (Fosnot & Perry, 2005).

*Developing a common vision.*

Individuals can support the visions of their workplaces by critiquing themselves to construct future change (Senge, 2005). By critiquing their organizations' shared vision, however, individuals may be seen as controversial by their supervisors' perspectives. This depends on whether an individual's attitude towards his/her organization's vision can be based on grudging or genuine compliance (Senge, 2005). By grudging compliance, individuals do not see the benefit of vision and they do not follow the organization's vision. Genuine compliance, on the other hand, allows individuals to make changes in an organized and systematic way.

Individuals also create knowledge by interacting with their families, churches and other groups. Individuals who choose not to socialize, may find it difficult to relate with others. The process of acquiring new knowledge takes time and must allow for contradictions to take place. For instance, individuals can choose to follow their family and obey what their family says

without any objection. This mostly happens during childhood. When individuals grow up, they may start to argue what they have learned from their families. Individuals become critical thinkers. This argumentation stage can happen in isolation while reading a book, listening to audio conferences or accessing the internet. Some individuals can move into a collaboration phase which intensifies their social interactions.

My students and I have a common vision. We share our goals during each health education session. They have decided to follow their health care providers' advice to treat their HIV infection. They may learn to apply this advice for only a short time. However, they will truly need to assimilate, accommodate and contradict this advice for the rest of their lives or until a cure for HIV is discovered to remain healthy. The training I provide motivates students to take steps to improve their health by following the advice of health care experts and making better choices about their sexual health. Potentially, my students are in conflict when they realize that by changing their sexual behaviors they can improve their life span. Knowledge and behavioral changes can make a difference.

My patients sometimes share their health condition with their families, partners and friends. Why do they share this information? The reason is because the human beings are social entities and they need to communicate what their perceptions are. "People need to relate to their realities and in improving organizational decision making (Morgan, 1997)." A vision is not shared unless it connects our personal visions with those of the people at our organization. By sharing their visions and their knowledge equilibrium, the HIV community at La Clinica creates connections that build upon their current reality.

*Developing a disciplined mind when constructing knowledge*

According to Gardener (2008), people's behaviors are based on their disciplined, synthesized, creative, respectful and ethical minds. The disciplined mind establishes order when 1) identifying an issue; 2) spending an appropriate amount of time to problem solve; and 3) developing strategies and diverse solutions to tackle problems (Gardener, 2008).

By developing a disciplined mind, individuals understand and respect their opinions (Gardener, 2008), manage the uncertainty for future events and enhance their creativity. I implement a disciplined mind with my students when I share my vision with them, set-up our work methodology, dialogue, and discuss issues in different ways. Discussion may increase tension, because our perception of an issue may be one of crisis. However, it helps to develop better teamwork connections because we are opening doors for a wider intelligence (Senge, 2008).

Learners accumulate data, knowledge, methods and their perceptions by sharing their ideas and intentions. This occurs when they participate and promote discussion by applying disciplined minds while acquiring new knowledge.

Section III. My experience constructing knowledge by sharing my vision and my disciplined mind when teaching communities.

I provide the HIV/HAB clinical indicator training for two groups of learners at WCHS La Clinica. The first group composed for patients living with HIV/AIDS, and the second group is composed by physicians, registered nurses, pharmacists and health administrators. For future

reference, the second group is called staff. The training for patients has been taught in Spanish and for staff in English.

The Center for Infections Diseases (CDC, 2010) documents and publishes HIV/HAB indicators. HIV means human immunodeficiency virus and HAB means HIV AIDS bureau. The HIV/HAB indicators measure HIV primary and support clinical services. The HIV/HAB indicator training has provided twice per year for patients. The staff group has received this training once in December 2010.

I facilitate the HIV/HAB quality indicators workshop for patients and staff at WSCHS La Clinica. The participants' cognitive equilibration has similarities and differences. As a facilitator, I observe patients and staff follow the equilibrium theory, develop a common vision, and develop disciplined mind. I analyze patients and then staffs groups' interactions. Finally, I explain how their discussions construct new knowledge.

When teaching patients, I split the group in three small groups and propose discussion about HIV indicators without previous indications. The patients' assimilation process is in place when patients, who do not have previous knowledge about clinical indicators, need to learn by listening other patients' information. The contradiction and accommodation of knowledge is present for those participants who had previous knowledge. They are constructing knowledge when they discuss and create a balance of their thoughts by assimilating, contradicting and accommodating their understanding about HIV clinical indicators.

The patients develop a common vision when implementing the equilibrium theory by assimilating, contradicting and accommodating their HIV knowledge. By listening to others, the

small and the big group create a common vision at each HIV clinical indicators. They have a common meaning through contradicting each others. The patients identify the issue, spend the appropriate time to understand their differences (problem solving process), and develop strategies for same problem and diverse solutions (Gardener, 2008).

Finally, as a facilitator, I explain what the CDC (2010) proposes. It creates a discussion which merges the entire group and enriches all participants' learning process. The small groups use the equilibrium of cognitive theory by accommodating their new knowledge. The big group discussions contradict their current knowledge as they listen to the facilitators' explanation. They do not consider assimilation of thoughts because all participants already have their previous knowledge based on their small groups' discussions.

I explain the CDC (2010) facts and metrics to staff learners. The metrics includes the percentage complete at each indicator, the population we serve, and the description of indicators. After this explanation, the staffs develop a discussion when assimilating their knowledge about the HIV/HAB clinical indicators. Through their interactions, they contradict what they understand and finally accommodate their new knowledge. In addition, the staffs develop a cognitive behavior perturbation when assimilating, contradicting and accommodating their knowledge about HIV. I think the assimilation process starts when they pay attention to my speech, and then the staff group develops their new information about the clinical indicators. The staff uses the same patients' steps when developing a disciplined mind and a common vision by contradicting the HIV clinical indicators as patients did. I think the staff's role position creates tension when they assimilate because the new information makes feel them vulnerable.

As a facilitator, I assimilate new techniques to deliver workshops, contradicting my previous facilitators' skills and accommodating previous knowledge to be taught. We are a dynamic learning community. We shift from an unbalanced to balanced cognitive of knowledge. It occurs when learners develop a common vision and update their knowledge. I understand patients develop different strategies to apply HIV/HAB clinical indicators because they create their own health plan by sharing their vision and meanings with their physicians and health administrators. As a result, we, as a learning community develop a disciplined mind. The unbalance and balance of knowledge reflects a dynamic learning process, not a negative implication. As learners, we are equilibrating our cognitive knowledge, our common vision, and our disciplined mind.

#### Section IV. Conclusions and recommendations

By accommodating, contradicting and assimilating, individuals and communities construct knowledge and create a common vision. This action reflects the way individuals equilibrate their notions of things and behaviors. Through cognitive equilibration, individuals and communities construct knowledge by merging ideas, values, cultures and beliefs. However, personal interpretations of events must be driven by learning, not by transmission per se. As a facilitator, I recommend to research more to develop metrics for the equilibration theory, the shared vision, and the disciplined mind. The quantitative and qualitative researches methods will support strategies for main topics discussed in section III. I also recommend to design and implement indicators to track the disciplined mind in its two stages (1) identifying an issue, and (2) spending an appropriate amount of time to problem solve. The third stag, (3) developing

strategies and diverse solutions to tackle problems (Gardener, 2008), can include quality initiative projects to be implemented.

By learning, individuals and communities are able to identify their visions on past practices, strategies, values, cultures and beliefs, thereby exemplifying the amalgam of knowledge (Gardener, 2008) and creating metaknowledge. I believe that metaknowledge is a superior form of communication and plays a large role in helping individuals and communities acquire new knowledge. It is not possible to acquire meaningful knowledge in an isolated setting. I recommend continuing provide more workshops for patients and staff about the HIV/HAB clinical indicators. It will help to develop a quality community in Twin Cities by providing same level of education. The facilitators can manage the learners' similarities and differences.

By sharing my personal and professional vision (Senge, 2005), I teach communities and improve their ability to understand their realities. I also teach that vision is dynamic, and needs to be critically analyzed based on the needs of an individual, community or organization. I teach my students that they will benefit from transforming their vision from a grudging one to genuine compliance. I believe this is a key step in constructing knowledge.

Individuals can learn from isolation, when they assimilate, accommodate and contradict their realities. A child may obey their parents or family unit. However, once he or she is grown, he or she may refuse to obey or become truly integrated within their family. He or she has a choice in whether or not to share individual interpretations, but will create isolated interpretations without face to face interactions.

## Reference

- Apple, M., Gandin, L. A., and Hypolito, A.M (2001). "Paolo Freire, 1921-97". In Palmer, J. A. (Ed.) *Fifty modern thinkers on education. From Piaget to the present time.* (pp. 128-133). New York, N.Y. : Routledge.
- Cobb, P. (2005). Where is the Mind? A coordination of socialcultural and cognitive constructivist perspective. In Fosnot, C. (Ed.) *Constructivism. Theory, perspectives, and practice* (pp. 39-57) (Second ed). New York, N.Y: Teachers Collage Press.
- Fosnot, C.T., & Perry, R.S. (2005). Constructivism: A psychological theory of learning. In Fosnot, C. (Ed.) *Constructivism. Theory, perspectives, and practice* (pp. 8-38) (Second ed). New York, N.Y: Teachers Collage Press.
- Fosnot, C.T (2005a). Epilogue. Constructivism revisited: implications and reflection. In Fosnot, C. (Ed.) *Constructivism. Theory, perspectives, and practice* (pp. 276-291) (Second ed). New York, N.Y: Teachers Collage Press.
- Fosnot, C. T. (2005b). *Teachers construct constructivism: the center of constructivism teaching/teacher preparation project.* In Fosnot, C. (Ed.) *Constructivism. Theory, perspectives, and practice* (pp. 263-275) (Second ed). New York, N.Y: Teachers Collage Press.
- Glaserfeld, E. (n.d.). An exposition of constructivism: Why some like it radical. In class handout. [Scientific reasoning research institute]. Retrieved from <http://www.oikos.org/constructivism.htm>
- Heins, George E. (October 1991). Constructivist Learning Theory. Retrieved on November 12th, 2009 from <http://www.exploratorium.edu/ifi/resources/constructivistlearning.html>
- Senge, P (2005). *The fifth discipline: The art & practice of the learning organization.* United States of America: Doubleday.
- Senge, P. (2008). *La quinta disciplina. El arte y la práctica de la organización abierta al aprendizaje* (2nd ed). Buenos Aires: Granica.
- Stewart, D. (2010). Important, if true. Graduate education will drive future prosperity. *Journal of Change: The Magazine of Higher Learning* 42(1) p36-44, 9p. Retrieved on May 24, 2010 from Academic Search Premiere database (0009-1383).