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Universal Design of Instruction and Cognitions of Choice: An Integrative Approach to Teaching

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Abstract: An open environment that provides equal opportunity for learning builds a stronger educational community; applying Universal Design of Instruction (UDI) is one means by which we can attempt to provide this opportunity to students. Cognitions of Choice (COC) was developed as a way in which to teach critical and creative thinking skills that support the application of meta-choice in education. A combined approach utilizing UDI and COC was provided to teachers in training in effort to assist them in developing curriculum that embedded critical and creative thinking skills.

In this post-modal generation, students may not be experiencing opportunity to develop critical and creative thinking skills that support relational learning that triggers limbic involvement. An integrated approach to learning is offered that assists in developing skills that mediate choice to connect to meaning and not just content. Learning that provides personal and relational meaning is more likely to be retained and applied; therefore, offering strategies that support these efforts focuses on personal development as well as performance outcomes.

Learning experiences that relay through the thalamus and hippocampus and ignite the limbic system increase the likelihood of long-term memory storages being activated. Training teachers to address brain function in learning may provide insight into how each of their students learn, allow students with invisible disabilities to not be over-looked, and allow teachers to provide individualized and multi-sensory learning experiences that address both a concrete structure offered through UDI as well as meets the “meta” needs through Cognitions of Choice.

Introduction:

We learn best through involving the limbic system in the learning process. Universal Design of Instruction (UDI) is necessary to ensure that the needs of students that may not currently being met are adequately served. In this post-modal era, children, adolescents, and young adults may not be developing critical thinking skills necessary to support choice in learning. Developing choice is a necessary step to allow the application of personal meaning in the acquisition of new learning while not losing site of the goals that are needed to succeed by meeting performance outcomes. Learning is a relational and integrative process and learning the skills to select and prioritize choices allows the learner to develop independence in learning and social functioning. Teaching the skills involved in making choices assists in over-coming fears, skills deficits, or other aspects of emotional or behavioral limitations that may impede learning. Blending UDI and Cognitions of Choice (COC) © offers the next step in supporting relational meaning to target

limbic system involvement in learning to increase the development of both the skills or percepts involved in choice.

Frequently in education we become so focused on teaching the content that we miss the more important effort of teaching the meaning. We become concerned with teaching standards and test results that we have created a generation of learners who are more concerned with performance outcomes than the value of learning for the joy it brings in personal development. In training the next generation of teachers the more significant task requires a blending in our approach to produce outcomes while refocusing our efforts to the larger picture of developing personal meaning in education. Through neuroscience we understand that when the individual is involved at a level that evokes personal meaning the information will encode through the thalamus and be transferred into the hippocampus where it is stored in long-term memory (Sousa, 2011). When we ignore the important role of the limbic system in the learning process we miss the opportunity to create learning experiences that will have life-long meaning.

Since the application of “No Child Left Behind,” and inclusion; general education teachers need to be prepared to address the needs of students at all levels of functioning. Formal training programs for general education teachers require very little exposure to meeting the needs of students with visible or invisible disabilities. The principles of UDI that address equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and size and space for approach and use; construct a learning environment that is intended to meet the needs of all participants (Connell, et al., 1997).

Assisting teachers in training to apply high level critical and creative thinking skills in their approach to teaching is intended to open the door to designing learning environments that respect the need to employ *choice* in learning. When we model learning tasks that simply require regurgitation of information, or researching without building insight we are not assisting students in their development of metacognitive skills or awareness. Cognitions are not just the thoughts we hold, but incorporate the actions we take based upon these patterns of thinking. Cognitions connect to our values and personality traits that create our neural hotwiring or programming that construct our social perceptions and life choices. Our cognitions guide our habits of being and life philosophy (Steffen, 2012).

Hierarchical Process in the Development of Choice:

- ✚ Unconscious (automatic thought)
- ✚ Meta (Thoughts about thinking)
- ✚ Conscious or Mindfulness
- ✚ Integrated or Authentic Perception

Methods:

The teachers in training were asked to develop a learning experience for their students in which they embedded UDI, the principles, the eight performance indicators and the newly developed model to enhance learning called Cognitions of Choice (COC).

Steps:

- 1) The teachers in training were taught Universal Design of Instruction and the principles, and eight performance indicators.
- 2) The teachers in training were taught Cognitions of Choice (see attachment), the 24 skills set/percepts in the development of skills of choice.
- 3) They were asked to choose two percepts/skills each from the twenty-four Cognitions of Choice to further develop.
- 4) Teachers in training were asked to combine UDI, the principles and performance indicators with the two COC percepts/skills they chose to design an exercise to teach the choice skill to their students that would offer an integrative learning experience.
- 5) They were asked to create a mind map of the COC skills to connect the visual and auditory modality for acquiring a new skill for development of choice.
- 6) The teachers in training were required to present the exercise to other teachers in training and receive feedback on the application of UDI, the principles, and performance indicators and the COC skill they outlined.
- 7) In conclusion they were asked to consider any possible need for revision and how to modify exercises to improve for future application.

Example Lesson Plan:

COC Percept and UDI Strategy: Self-Encouragement and Inclusiveness

This lesson is part of a series, using strong historical figures that had disabilities as a way to encourage students to look at people as heroes and role models, i.e. Harriet Tubman, Helen Keller, Stephen Hawking, Helen Keller, Frida Kahlo, Franklin Delano Roosevelt or Albert Einstein. Students will be asked to look how their historical figures may have required self-encouragement. They will be asked to describe their role models use of self-encouragement and asked to find similar traits in themselves. They will be asked to identify any disabilities, internal or external limitations their role model may have had to over-come, explore obstacles to over-coming, and how this might have contributes to making them a stronger person. They will be asked to consider any thing they have had to over-come that was physical, mental, or emotional, and to talk about how that felt and how they talked themselves through their difficult time or

struggle. They will be asked to discuss how their experience might have helped them grow stronger and learn to be more self-encouraging. The lesson can be modified to address the appropriate skills level for the student's age, grade, or skills and abilities.

Discussion:

The teachers in training were provided a model entitled Cognitions of Choice (see Cognitions of Choice Paradigm) that offers a network of neural programming percepts that engages self-dialog between automatic thinking, critical thinking, mindfulness, and integrated life choices. The application of COC evokes an active process of resiliency and hopefulness for living in the present with a healthy respect for future orientation and a transcendent learning perspective. Cognitions of Choice (COC) are percepts or skills meant to neutralize negative self-defeating cognitions that disrupt the learning process, by increasing the student's awareness of their "meta" process and the use of strategies, and by correcting negative thoughts that may occur at an automatic or unconscious level by making them conscious and open to change. Ideally we need to acquire both the percept and the skill to form a cognitive set. A student may have an idea (percept) about a skill, and then begin to develop the skill; as the skill develops their relationship to the percept will change and grow.

The teachers in training were provided an exercise to develop cognitive percepts that are considered instrumental in the development of skill sets required in making choices. They were provided a model of twenty-four percepts that when acquired allow an individual to have a wider range of skills to apply in making choices. Their assignment was to choose two specific skills from the twenty-four percepts of COC and expand the definition of the chosen skill, and then expand the concept by creating a mind map using *Smart Art*™ (in Word) to form a visual representation of the percept. They were also required to provide an example application for a classroom experience as to how they would teach this percept/skill to their students.

The Cognitions of Choice model offers a three level approach bringing the meta-cognition surrounding choice to deeper levels of meaning in an evolving manner. This paradigm creates deeper semantic encoding levels that can be tailored to the student's level of experience, readiness, or resiliency. As the student reaches increased awareness, has developed skills from the COC model and demonstrate the ability to apply the skills related to choice appropriately in situational context with accuracy they can be taught the next level mnemonic and provided continues encouragement and support to grow and expand their ability to make independent choices in learning. The hierarchical system provides a developmental approach that offers a foundation for learning that provides limbic involvement, and assists in bridging the gap that can exist when we teach to content and neglect to teach to the meaning.

Level I: Awareness Mnemonic

Change
Happens; as an
Opportunity; to
Invite
Corrective
Experience

Children and adolescents go through many social, emotional and physical changes. The more we can assist them in understanding their own process; the more likely they will become resilient learners. Cognitions of Choice provides a model of corrective mentoring that teaches the student to interact within themselves and with others in a hopeful manner, and to over-ride negative thoughts that can interfere with intellectual and emotional development.

Level II: Application or Action Mnemonic

Choice
Happens; as an
Opportunity; to
Investigate/Initiate
Creative
Expression

When we are over-whelmed, or stressed our ability to think on a creative plane can become blocked. This can impede growth and self-development. Engaging in *choice* can assist in developing critical and creating thinking and may give them the tools construct a happy and joyful attitude for life-long learning and success.

Level III: Integrative Mnemonic

Consciousness Choice; leads to
Hope; and
Openness; which restores
Intelligence (emotional); through acceptance of
Consequences (accepting responsibility); we gain
Empowerment

Ultimately teachers want to actively engage students at a conscious level so they can feel empowered in the learning experience and have full access to all aspects of intelligence. We learn through our senses but also through our experiences and in a relational fashion. Intelligence is a dynamic concept that involves more than verbal or mathematical constructs. Adopting the broader definition of intelligence can not only assist the teacher in perceiving the student through a more accurate scope, but can also allow the student to receive validation and view themselves through this broader definition of intelligence.

Conclusion:

The marriage of Universal Design of Instruction and Cognitions of Choice allow the teacher to fashion curriculum, and the learning environment in a manner that can incorporate an individualized approach even within a group setting by creating experiences that target the development of metacognitive choices at an appropriate level of development. The eight performance indicators (Burgstahler, 2008; 2012) of UDI (class climate, interaction, physical environment and products, delivery methods, information resources and technology, feedback, assessment, and accommodation) can be represented by the teacher making a conscious effort to employ each of these categories within the learning environment.

The inclusion of UDI in combination with COC provides a holistic method of teaching that will allow teachers to integrate students and address the variety of needs they may present. Universal Design of Instruction offers the principles along with a concrete structure for application; where Cognitions of Choice addresses the “meta” needs. Both focus on the development of skills at an individualized level. The idea of addressing critical and creative thinking in the learning process is well supported through the works of Costa and Kallick (2008). Cognitions of Choice were written in compliment of their work in effort to expand the concept of choice in learning.

Cognitions of Choice are designed to activate limbic involvement by evoking increased awareness surrounding learning and choice making. With COC the teacher assists the student in using the limbic mind to remember, acquire new learning, apply critical and creative thinking, and develop choice in their relational experience to what they are learning. Using a multi-sensory and multi-dimensional approach enlightens the limbic system and supports the relational aspect of learning that translates to personal meaning.

The teachers in training successfully applied the percepts and developed mind maps to expand the skills concepts. They created multiple examples of the manner in which they would apply UDI and COC with students. For newer teachers in training the idea of combined approaches can be initially confusing; therefore, it is suggested that they be allowed ample time to acquire a high degree of familiarity with both models. The combination of UDI and COC is seen as a promising practice because it speaks to the necessary link between learning in a manner that touches the limbic structure and provides meaning for the student. It would be useful to structure the exercise at Level 1 of the hierarchy and instill that the twenty-four percepts are clearly understood so that the related skills or percepts can be acquired before moving to the next level of choice. Moving too quickly might disrupt the process by causing frustration, which would potentially interfere with the universal design of instruction. This cautionary note is just that and nothing more. In a holistic approach to learning the teacher must always attend to maintaining the homeostasis in the environment; this is just another element that adds respect to the complexity of the human experience and the need for relational learning to always be in the forefront of the teacher’s mind. Our ability to create holistic educational environments that

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apply universal design of instruction offer a promising future as we continue to transition in this post-modal era of instruction.

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