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Kinesthetic Teaching Strategies for Adults in a Lecture Setting

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Kinesthetic Teaching Strategies for Adults in a Lecture Setting

By
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An Honors Thesis Submitted in Partial Fulfillment of the
Requirements for Graduation from the
Western Oregon University Honors Program

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Abstract

Kinesthetic teaching is a beneficial way for adults to learn and retain new information, but is not commonly used by instructors. The purpose of this project was to compile and discuss a list of kinesthetic strategies to help instructors facilitate learners' ability to engage and focus on the learning material during presentations. The list of strategies was split into three sections: strategies that can be put into place by the learner, strategies used by the presenter without any specific learning outcomes, and strategies that are used by the presenter with specific learning outcomes.

Introduction:

The primary style of teaching for adults is through lecture. A presenter stands at the front of a classroom or conference room verbally and visually expressing what they wish to teach and expect the learners to focus and retain all the information that is being presented to them. For most adults it is difficult to stay focused on one thing for a long duration of time, therefore it would be beneficial for presenters to find alternative ways to teach. Kinesthetic teaching is teaching through movement based activities whether they be small or large. The purpose of this project was to compile and discuss a list of kinesthetic strategies to help learners engage and focus on the learning material during presentations.

Methods/Goals:

The goal of the project was to create a list of strategies that can be implemented into an adult learning environment. The strategies were separated into three different categories. The first category was strategies that can be implemented by learners without direct instruction from the presenter. This could be bringing something to class with you that you could fidget with. The second category included strategies that are implemented by the presenter but have no specific learning goals other than bringing focus and attention back to the presentation. An example of this type of strategy would be the instructor incorporating breaks into the presentation so that the learners can stand up, move around and stretch. The last category was active learning strategies. Active learning strategies have specific learning goals and incorporate movement to help the learners understand the material better than they might have been able to with just traditional teaching styles. For example, this type of kinesthetic teaching strategy would include learners simulating the senate operations in order to understand how it runs.

Most of the strategies that were included have been selected because of their research support, which validate their effectiveness. New strategies were also created or other strategies from different studies were modified to make them more suited for the target adult audience. Most strategies that have been studied have a focus toward children. As a result these strategies needed to be adapted to make them more applicable to an adult audience.

Literature Review

Kinesthetic teaching is important for adults when learning. It can improve memory, attention, and general cognitive function. As an instructor begins to develop a class or presentation, it would be beneficial for their audience to present the information in multiple ways such as visually, kinesthetically and auditory. Most instructors choose to only focus on auditory and visual teaching styles and ignore kinesthetic teaching. Zull (2002) disagreed with this sort of teaching, stating that after a student learns in a visual or auditory way it is important that they back up what they have learned with kinesthetic or active testing.

Zull (2002) identified a learning cycle that contained four pillars of learning: concrete experience, reflective observation, abstract hypothesis, and active testing. Reflective observation and abstract hypothesis both represent the inside level of learning, meaning we learn cognitively and are just beginning to develop our own thoughts on the subject. Most instructors focus on the cognitive or inside portion of learning and ignore the outside. Active testing and concrete experience allow learners to take control of their learning. Instructors want the learners to incorporate active testing of their own ideas. Active testing is where learners are able to find value in their learning. It is imperative for instructors to remember that active testing needs to be a process not just an answer. It provides the system for another concrete experience to begin the cycle again.

Zull's (2002) model of learning showed the need for action when learning. He stated that our ideas, "expressed in the physical form of body action and sensory interactions with people and objects in the world....create concrete experience" (p. 208). Typically, sensation

leads to integration of knowledge, which leads to action. Action provides sensory feedback to the brain. Based on this information it would make more sense to say that when teaching kinesthetically, action leads to sensory feedback which leads to the integration of the knowledge being learned (Zull, 2002).

There has been a push in recent years to understand how movement affects cognitive functioning. Cognitive function has been defined as the process whereby an individual is able to perceive, recognize, or understand thoughts and ideas (Lox, Martin-Ginis, Petruzello, 2014). Jensen (2005) showed multiple reasons for why movement has an influence on cognitive function. Anatomically, the area of the brain associated with motor coordination is the cerebellum. The cerebellum is also involved in memory, attention, and spatial perception suggesting a link between cognitive functioning and movement. Jensen (2005) also showed that there is a functional evidence that through movement there is improvement of cognitive functioning. Enhanced blood flow due to increased movement escalates the amount of oxygen being transported to the brain, creating higher cognitive abilities and increased attention in an individual.

Eliassen, Souza and Sanes (2001) found increased activation in the brain during movement and learning trials. In their study, the researchers had participants perform reaction-time tests under multiple conditions. The conditions were designed to increase knowledge acquisition by using explicit learning mechanisms or to encourage the engagement of implicit learning mechanisms when participating in movement learning trials. Explicit learning means that the instructor clearly outlines the learning goals for the class and provides a structure for the class so that everyone understands what is happening.

Implicit learning is when an instructor does not outline the goals for the class causing the class to be unable to make their own conclusions. The trial that tested explicit mechanisms showed significant improvement in reaction time, whereas the implicit mechanism trial did not. The researchers also found that there was increased activation in the brain as learning progressed. This result suggested that using explicit learning with movement learning increased the learner's brain activation furthermore increasing the learner's cognitive functioning abilities.

Both Jensen (2005) and Eliassen, Souza and Sanes (2001) have shown through their research that there is a connection between the mind and the body. This shows that movement activities, no matter the type, can lead to better attention and learning. If learning is not in your body, you haven't learned it. Those who believe that the mind trains the body have it backwards, it is the body that trains the mind (Jensen, 2000).

Perez-Sabater, Montero-Fleta, Perez-Sabater, and Rising (2011) investigated whether or not movement and learning could improve long term memory. The purpose of the researchers' study was to compare linguistic knowledge retention of students in a movement learning environment compared to students who were taught by means of a traditional approach. The researchers had the movement group design exercises to illustrate grammatical topics and had the group create a presentation where the students acted as the teacher. The researchers' tested the retention of grammatical topics two times; the first was short term retention and the second was long term retention. The results of the short term retention test showed better retention in the movement teaching group than in the traditional teaching group. When the researchers tested retention a few

weeks later, there was a significant difference in retention between the group that was taught with movement activities and the group that was taught with traditional teaching methods. The group taught with movement activities did much better. The researchers showed that adding movement into learning activities increases the learner's long-term memory.

Palmer (2001) studied the effects of the connection between the mind and the body when music was added. Music education, particularly learning to play an instrument, has been shown to have many benefits to cognitive functioning. Palmer (2001) started combining movement and music into his own teaching because it allowed people to be actively engaged and enjoy what they are learning. He found that the combination of music and movement provided the perfect opportunity to reinforce the connection between nerve cells. Perceptual, cognitive, and motor abilities evolve through connections between nerve cells. Palmer (2001) found that the benefits a learner can get from using music and movement to reinforce learning are numerous, such benefits include: connections between nerve cells are reinforced leading to perceptual, cognitive and motor abilities being able to evolve. Palmer (2001) showed educators that there are many ways to incorporate movement into their presentations or lecture to improve the focus and cognitive function in the classroom if the educators are willing to be creative and to try multiple ideas.

One of the largest debates in the area of movement and learning is whether learning styles are legitimate or not. According to the VARK theory of learning styles (Fleming & Mills, 1992), learning styles are based on: personality traits, information processing, social learning (how the learner interacts with their environment), and instruction preferences.

The different types of learning styles are **Visual**, **Auditory**, **Reading/writing**, and **Kinesthetic**. According to learning styles theory, introducing varied assignments will increase students' ability to grasp or will serve as a reinforcement of the concepts presented in the students' textbook (Riordan, 2006). Wagner (2014) crafted lessons based on preferred learning styles of students, 68% of which preferred kinesthetic methods.

Newton (2015) disagreed that learning styles are applicable, calling them a "neuromyth." He argued that identifying learning styles in learners can be potentially dangerous. Telling someone they learn a certain way can deter them from going into a field where learning is often presented through a different learning style, could make someone overly confident in their ability to learn a subject, or make them narrow their assumptions about how they can learn. The researcher continued that though there is overwhelming evidence to show that learning styles are not effective, but most educators still believe that learning styles create the most effective learning for their students. Learning styles are said to be the educational equivalent of homeopathy, a medical concept in which no evidence exists, yet it is still widely used and put into practice (Newton, 2015).

Although there is much disagreement as to whether or not each person has a specific learning style, both sides would agree that varying how information is taught is beneficial to all learners. Wagner (2014), who is in favor of the learning style concept showed in her study that even those who identified themselves as a visual, auditory, or reading/writing learner still benefitted from participating in learning activities other than their identified learning style, showing increased understanding and better test scores. Therefore someone who is identified as a visual learner will still benefit from a presentation

that is kinesthetic. Variation from the normal lecture style, which tends to include only visual and auditory teaching, is important to help individuals better understand what they are being taught.

One of the major questions that has been asked about incorporating kinesthetic teaching into an adult lecture or presentation is feasibility. Dewing (2009) researched the effects of movement and learning in regards to on the job training for nurses. The researcher found that using movement and learning in the work place forced the learners to pay greater attention to what was being taught and allowed them to have better understanding of the material and make deeper connections to the concepts. Dewing also found that using kinesthetic teaching methods in the workplace allowed for better discussion from a pool of people with quite a few differing views and backgrounds, which also benefited the learning. Being able to hear the different ideas allowed learners to find the best strategies for their work training that could help them learn, and it helped instructors determine what worked best for the learners.

An instructor that is working active testing into their lecture or presentation, can sometimes find it difficult to know where to start. Zull (2002) had some tips for instructors when they start to create active testing activities. He started by reminding teachers that they need to be ready to discover what their students have on their minds and be willing to create lesson activities or discussions around those ideas. Instructors need to give meaningful feedback to their student's ideas and actions and take their students seriously. When designing a presentation or lecture a teacher needs to make sure their active testing is created to keep the learner focused on the task at hand, and be sure that the active

testing is consistent with the learning goals the instructor wants their learners to achieve. With this in mind teachers should not stop students when their attention goes off course. Even if the student seems off task they may be able to gain new and interesting ideas or perspective to add the subject that is different than what you, as the instructor may have come up with.

Dewing (2009) suggested strategies to make adding kinesthetic teaching more feasible. She suggested building upon concepts that are already in place in the workplace and converting them into movement activities. This relates to what Zull (2002) discussed earlier about starting with learning inside and using active testing to build upon what the learner has learned and develop these ideas on the subject even more. Another idea that Dewing (2009) suggested was to provide information about kinesthetic teaching to the group so that learners can grasp the purpose of the learning experiences that they are participating in. When planning a kinesthetic teaching activity, it is important to be mindful of the group you are planning for. When beginning a kinesthetic teaching lesson, start small and build on what you have taught previously.

Significant learning is closely related to movement learning activities or active learning. Fink (2003) created a guide to help instructors design courses with significant learning incorporated into the lessons. This guide can help instructors and presenters easily integrate kinesthetic teaching methods into their lectures or presentations. Fink stated that an effective set of learning activities is one that includes activities that incorporate information and ideas, experience, and reflective dialogue. There is a wide variety of ways to include all of these components in your lesson or presentation. Fink encouraged

instructors to make meaningful goals for their learning activities and to consider whether or not students have achieved these goals. These questions will guide the instructor to know whether they have successfully incorporated an active learning movement activity into their presentation.

Active learning is an approach for in-depth learning that draws on, creatively synthesizes and integrates numerous learning methods (Dewing, 2009). Active learning shifts the focus of instruction from the instructor to the learners. Active learning draws on the principle of multiple intelligences; critical reflection; learning from self; and dialogue and shared experiences with others, skilled facilitation, intentional action and takes place in the workplace (Dewing, 2009). The theory of multiple intelligences was created in by Gardner (1983). Gardner suggested that eight different intelligences account for a broad range of human potential. The intelligences are linguistic intelligence, logical-mathematical intelligence, spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalist intelligence. The body-kinesthetic group has a keen sense of body awareness. They like movement, making things and touching. They communicate well through body language and are best taught through physical activity and hands on learning. In his study, Palmer (2001) discussed the use of musical and bodily kinesthetic intelligence working together and also having an effect on all of the other intelligences. The researcher used movement and song to teach concepts like math. This would mean that musical, body-kinesthetic, and logical-mathematical intelligence were all working together to create learning for the students.

Active learning strategies were discussed by Mobley and Fisher (2014). The researchers created active learning strategies to be incorporated into college lectures, with a focus on the political science major. The researchers categorized their strategies by level of preparation and class time needed to implement the strategy. One strategy that came from the kinesthetic activities area and requires little preparation and minimal class time, is called snowball. The goal of snowball is to have students defend views other than their own. When participating in snowball, students answer a survey anonymously, toss that survey around the room, and are tasked with defending another's view. The practical concerns the researchers identified were ensuring anonymity of all the students.

Another strategy presented by Mobley and Fisher (2014) in their "kinesthetic activities that required moderate preparation and class time" section was called Strategy Gallery. The purpose of gallery was to ask students to respond to a particular text/visual and to encourage peer discussion of a text. During gallery, the instructor posts texts/visuals around the room accompanied by a blank sheet of paper. In the study the researcher used quotes for the students to respond to. Students walk around the room viewing, annotating and responding to each posted text/visual. A practical concern identified by the researchers was physical classroom space.

Riordan (2006) proposed a strategy designed for an economics course which had students present a live, online tour of a stock exchange (via a website). The instructor would have a student or a group of students do the presentation. The first step the researcher identified was to invite students to investigate possible websites and create a short list of country or electronic exchanges that they are interested in doing the tour of. The next step

is to hold a lottery to assign each student or group one of the websites. The students would present the tour and briefly describe the exchange and its history. The primary purpose of this active learning activity is to use the detail of sites to reinforce the role of financial markets in the global market for capital and the development of accounting practice.

Fisher and Mobley (2014) and Riordan (2006) showed that there is a wide variety of strategies available for instructors to use. These studies also showed that strategies for active learning can be made for adults and implemented into a lecture. The researchers also displayed that strategies can be used for many different subjects it is just a matter of finding a kinesthetic activity that fits the learning goals.

Other movement strategies that can be used by instructors are ones that have no specific learning outcomes other than bringing focus and attention back to the lecture. These strategies could include encouraging learners to take a movement break or providing fidget toys to the learners. In one study researchers measured the benefits of taking a movement break while learning in a classroom (Camahalan & Ipock, 2015). The common argument against taking movement breaks is that they take away instructional time. In their study the researchers found that when taking movement breaks the attitude and attention of the learners improved. There were also significant gains in learning based on pre- and post-testing. The researchers also measured an improvement in focus and thinking after movement breaks, finding that overall the movement break was not a waste of class time because students were better able to focus and retain the information.

Taking breaks can also be beneficial for productivity in the workplace. In a study by Henning, Jacques, Kissel, Sullivan, and Alters-Webb (2010) the effects of frequent work

breaks on focus and productivity when working were investigated at a large insurance company where the primary work was performed sitting down at a computer. The researchers provided empirical evidence that frequent, short movement breaks benefitted worker productivity and well-being. The researchers measured the difference between movement breaks and rest breaks without physical activity. The workers were more attentive and productive after the movement rest breaks than when being inactive during their breaks.

Fidget toys can be defined as a tool that is intended to help a learner with focus, attention, and active listening. Fidget toys come in many shapes and sizes and are often referred to as stress balls. Fidget toys are more commonly used in elementary school classrooms to help younger students but Slater (2011) looked at the impact that fidget toys can have in a university classroom. Slater's hypothesis was that the use of fidget toys would help refocus student attention on in-class topics. Slater provided the fidget toys for the students and encouraged the students to use the fidget toys during the lecture. Slater found that when students used the fidget toys their distraction levels from non-course material decreased. The use of the fidget toys helped refocus the attention of the students.

Movement strategies that learners can employ without direction from the instructor includes strategies like chewing gum and playing with a fidget toy while learning. There have been many studies done to measure the effects of chewing gum while learning. The results have shown to be wide in variation and have not all consistently supported the positive effects of gum chewing on learning. Smith (2009) investigated the effects of chewing gum on memory and alertness on college students. The study was done over two

weeks and the students were split up into one of six groups. Smith (2009) split the weeks into parts, so week one is part one and week two is part two. The groups were determined by what the researchers had them do in each part. Group one chewed gum in part one and were tested on learning and recall and did not chew gum in part two. Group four did the opposite of Group one. Group two chewed gum in part one and were tested on learning, and did not chew gum in part two, group five did the opposite of group two. Group three chewed gum in the first part and was tested on recall only, and did not chew gum in part two. Group six was the opposite of group three.

The results of Smith's (2009) study showed that chewing gum increased alertness and improved intellectual task performance. This is consistent with the physiological effects of chewing gum, which suggests that it increases arousal (Smith, 2009). This corresponds to what Jensen (2005) had said earlier about movement increasing blood flow to the brain which provides more oxygen.

Johnson and Miles (2007) also studied the effects of chewing gum on memory, but found that there was no improvement from chewing gum while participating in a learning activity. These researchers found that chewing gum had a detrimental effect on learning recall. Though Johnson and Miles (2007) found a negative effect on chewing gum and learning, the majority of research that can be found in this area has supported Smith's (2009) findings. Chewing gum is likely to improve attention and memory. Further research in this area is required to determine the validity of Smith's findings.

Note taking is a fine-motor strategy that has been thoroughly researched, and can fall into the category of strategies that can be put into effect by the learner without any

specific instruction from the instructor. Peper and Mayer (1986) studied two hypotheses to better understand the effect note taking had on learning. The first hypothesis was the attention hypothesis which was that note taking forces the learner to pay more attention to the presented material or to process the presented material more deeply. This would mean that note takers would perform better than non-note takers. The second hypothesis was called the distraction hypothesis, which states that taking notes forces the learner to concentrate on the motor act of writing instead of more fully listening to the lecture. When the lecture information is presented at a rapid rate, note taking can prevent the learner from paying attention to the material. According to this hypothesis non-note takers would perform better than note takers, when the lecture is presented rapidly. The results of the study showed that note taking improves the learner's ability to remember and understand the material being taught to them. If the material is taught too rapidly note taking became less effective and the same effect was found when the material was presented too slowly.

It has also been shown that people who handwrite their notes are able to encode the material better than those who take notes on a laptop. People are able to type faster than they are able to handwrite notes, because of this the note taker is more likely to write what the lecturer says verbatim. Verbatim note taking predicts poorer performance than non-verbatim note taking, especially on integrative and conceptual items. This shows that to gain the best benefits from note taking it is better to summarize and synthesize the information rather than transcribing the information, this will lead to better encoding of the information and improves the memory of the learner (Mueller & Oppenheimer, 2014).

It is often difficult for instructors to find ways to incorporate kinesthetic teaching into their presentations or lectures, but there is overwhelming evidence of the benefits of doing so. Kinesthetic learning activities improve cognitive function and help learners gain a better understanding of the material being presented to them. Using kinesthetic teaching styles allow students to take control of their own learning and to create their own thoughts and opinions on the subjects. This will lead to better retention of the learning material and create a more meaningful learning experience for the learners.

It was the purpose of this literature review to gain understanding for the need for kinesthetic teaching for adults both in the classroom and in the workplace. This project will further investigate the effectiveness and feasibility of kinesthetic teaching for adults. The purpose of the project was to produce a list of strategies (below) that can be employed in a presentation or lecture by both the learner and the presenter. The strategies were split into three sections: strategies that can be used by the learner without instruction, strategies put into effect by the instructor without a specific learning outcome, and strategies put into effect by the instructor with the intent of learning specific material.

Strategies

Section One: Strategies a learner can implement without instruction from the presenter.

This section is the only of the three sections that has a focus on how the learner can help themselves learn and focus better in a presentation or lecture. These strategies require little to no preparation for the learner and should be implemented with no distraction to the presentation.

Taking Notes

Purpose: Note taking is a way to move during a lecture while focusing directly on what is being presented. It also is useful later on for the learner to go over the notes they took.

Cognitive Benefits: Studies have shown that when taking notes you are able to focus more on the information being presented. Note taking also works as a good way to remember what is being presented (Mueller & Oppenheimer, 2014).

Feasibility: This strategy is very feasible, it would not be distracting to the presentation and is very common practice in lectures and presentations so it would not seem odd for a learner to take notes.

Chewing Gum

Purpose: Chewing gum allows the learner to do small movements while paying attention to the presentation.

Cognitive Benefits: Chewing gum has been shown to increase alertness in learners, improve memory and to improve individual task performance (Smith, 2009).

Feasibility: This strategy is feasible and would not be distracting to the presentation. The learner would have to remember to bring gum with them to the presentation.

Fidget Toys

Purpose: Fidget toys allow a person to absentmindedly play with a toy in their hand while listening to the presentation. The toy could be many things like something made out of foam that is easy to squeeze, or a pen that a learner is able to spin in their hand. The movement needs to be subtle so that the learner's attention is not on what they are doing with the toy.

Cognitive Benefits: Slater (2011) found that fidget toys helped reduced other distraction and kept students focused on the presentation.

Feasibility: The only difficulty with this strategy would be finding an appropriate fidget toy. It would have to be something that could easily fit in your hand and does not make any noise so that it would not be distracting.

In Slater's study he brought the fidget toys to the learners and passed them out to whoever wanted them and collected the toys again at the end of class.

It is important that the toys being used are not overly stimulating to avoid it taking all of the learner's attention. The toy needs to be able to be absentmindedly played with so that the student is able to focus on the lecture.

Section Two: Strategies that are put into effect by the presenter but do not have any specific learning objectives.

The purpose of this section of strategies is to allow presenters to bring focus back to a presentation in a quick and discreet way. These strategies would require very little to no planning for the presenter and can help learners stay focused on the material being presented to them.

Movement Break

Purpose: Incorporating movement breaks into a presentation allow learners to get more blood flowing to the brain and helps the learner focus better on the presentation. This could happen in a variety of ways depending on the presenter. The presenter could structure the movement break to include specific movement activity. For example having all the learners stand up and do ten jumping jacks. Or the presenter could take a more passive approach and encourage learners to stand and walk around for a few minutes but not require that the learners do so.

Cognitive Benefits: Taking movement breaks improves the attitude and attention of the learners (Camahalan & Ipock, 2015).

Feasibility: A movement break would be very feasible. The worry presenters have is often that taking movement breaks would take too much time away from instruction but research shows that taking a movement break is more productive and allows the learner to retain more from the presentation.

Stand up for a Question

Purpose: Having learners stand up when they ask or answer questions allows them to have a short break from being seated and not moving and allows for increased blood flow.

Cognitive Benefits: Standing up for the duration of answering a question will allow the learner to stretch and to increase blood flow to the brain. It has been found that standing can increase blood pressure by as much as five to eight percent in just seconds (Krock and Hartung, 1992).

Feasibility: This would be an easy strategy to implement but it would only be helpful to the learners who are answering questions. This strategy would be the most beneficial in discussion based lectures or presentations since it will have a need for more learner participation.

Having Classroom/Work equipment that encourages learning

Purpose: Having equipment like standing desks or exercise balls for learner's to sit on can help learners to be moving while they focus on what is being presented to them.

Cognitive Benefits: Using movement furniture is a strategy that could increase movement and focus without taking extra time away from a presentation.

Feasibility: This strategy is dependent on the amount of funds available to the instructor and how willing their organization would be to purchase the necessary equipment. Once the presenter has the equipment using it would be feasible. The presenter would want a mixture of both movement furniture and normal furniture as not every learner will be willing to use the movement furniture.

Stretching

Purpose: Working short one minute stretching breaks into a presentation allows learners the ability to stand up and refocus on the presentation. Having multiple one minute stretching breaks can help reduce the learner's lack of focus and could suppress the desire to leave the presentation.

Cognitive Benefits: A quick stretching break increases the blood flow to the brain which allows the learner to focus better on the presentation and will lead to more retention of the material that is being presented.

Feasibility: This simple strategy can be easily used and would take up very little presentation time.

Changing Location

Purpose: Having the first half of the presentation in one location and then having everyone move to another location for a potential activity would allow the learners to move as they went from one place to another. Also a change of a location can be beneficial to learner since it will allow the learner to take in new stimulation.

Cognitive Benefits: A new environment helps the brain to focus because it will engage in the new environment and allow the learner to take in their surroundings while learning what is being presented to them. The movement from the first location to the other will also give the learner a movement break and increase blood flow to the brain. If transitioning to another activity changing location can also help aid in that transition by making a clear separation of the first and second part of the presentation.

Feasibility: The instructor would need access to multiple rooms, or good weather, if they wanted to take the learners outside. If the presenter has access to multiple rooms this strategy would be well within their means and capability.

Section Three: Strategies that is implemented by the presenter with specific learning outcomes.

The purpose of this section is to outline strategies for presenters to use that allows the learners to move while learning the information that is being presented to them. These strategies let the presenter identify the learning goals they want to incorporate and use these goals to teach a movement based presentation. This lets the learners better encode this new information by having a novel experience.

This section includes the cognitive strategies that presenters are working to target by doing the strategy. These strategies include verbal modality, decision making, able to formulate and articulate an opinion, problem-solving, critical thinking and learning through doing. Verbal modality represents the ability for learners to express their knowledge orally. Decision making allows learners to use their knowledge to make appropriate decisions for themselves. The ability to formulate and articulate an opinion is not always a strategy that is targeted in the classroom but it is very beneficial for the retention of a subject because it becomes personal to the learner. The ability to problem solve will give learners the opportunity to all the different factors that need to be taken into account in the scenario being presented. Learning by doing is the center of kinesthetic teaching, it allows learners to have hands on experience with what is being presented to them.

Walk Around Quiz

Description: Have learners create their own test question, then have the learners walk around asking their peers the question they write and answering other questions. Have learners continue until they have talked to everyone or you run out of time.

Cognitive Strategies: Verbal modality

Materials Needed: Paper and pencil

Feasibility: Feasibility depends on the number of learners. This strategy would be easier to complete with a smaller number of learners. It can still be used in a larger group but there would be higher likelihood of duplicate questions and learners would not be able to get to every question.

Effectiveness: This strategy would be an effective tool for reviewing material.

Lines of Contention

Description: Signs will be posted around the room that range from strongly agree to strongly disagree. The participants will be given a series of scenarios and the participants will have to make a decision and be able to debate or defend their stance if necessary.

Cognitive Strategies: Decision making, able to articulate opinions and formulate arguments.

Materials Needed: Signs

Feasibility: The only concern for this strategy would be the number of learners and the size of the room. You would be able to do this activity with a large number of people but you need enough space for all the learners to walk around.

Effectiveness: This strategy is effective at engaging all learners and forces everyone to form their own opinions. It is also effective at helping learners understand multiple viewpoints.

Small Group Switch Discussion

Description: Have learners stand up and find a group of three, once everyone is in a group ask a discussion question. After the groups finish answering the question have a large group discussion about what their small groups had discussed and have the learners find a new group of four and ask a new question. Continue doing this until you have asked all your discussion questions.

Cognitive Strategies: Discussion, opinion development

Materials Needed: Discussion questions

Feasibility: Size of the space and amount of furniture in the room may make it difficult for learners to move around the room. This strategy would be able to be used in a small and large group, although a larger group may be more difficult to keep on task.

Effectiveness: This strategy would be effective at forcing the learners to formulate answers and opinions in the subject area. It would also lead to good discussion among group members and help the learners understand more than just the surface level of the material.

Interactive Model

Description: Wagner (2014) created an enlarged version of a human heart out of tape and put it on the floor for students to interact with by walking on it and understanding how blood flows in and out of the heart. This idea could be modified for a variety of different activities that allow the presenter to help the learners understand the subject matter.

Cognitive Strategies: Interactive

Materials Needed: Varies depending on the model

Feasibility: The main problem presenters may run into is the number of learners. If there are a large amount of learners it may be difficult for all the learners to take the time they need to interact with the model.

Effectiveness: This strategy was an effective way for learners to visualize the heart and to really understand it and how it worked.

Interactive Learning Stations

Description: When a presenter has multiple learning objectives they can use learning stations set up throughout the room to accomplish learning multiple topics in a short amount of time. The stations can include a variety of activities such as different types of puzzles or lab type activity where the learner will be able to participate in a hands on approach to understanding the material.

Cognitive Strategies: Problem-solving, critical thinking

Materials Needed: Varies on the station activities

Feasibility: This strategy would require a large space and may be difficult for a large amount of students. The presenter would also need to remember that it would take time to instruct the learners on what to do at each station.

Effectiveness: Stations would be an effective way to learn multiple but related topics in a shorter amount of time.

Snowball

Description: The presenter have each learner fill out a survey that relates to what is being learned in the presentation. Once finished the learner crumples up their survey and throws it across the room. Each learner picks up someone else's survey and defends the view of the survey they picked up.

Cognitive Strategies: Forming an opinion, understanding and arguing other viewpoints.

Materials Needed: Paper

Feasibility: This strategy would be very easy to use. The only concern that Mobley and Fisher (2014) identified was difficulty ensuring the privacy of their survey answers. The presenter would also have to consider the size of the group when deciding how much time would be needed in order to allow each learner the opportunity to argue their survey answers.

Effectiveness: This strategy was shown by Mobley and Fisher (2014) to improve understanding of the material related to the survey and also allowed the learner to understand the material from different points of view.

Strategy Gallery

Description: Put up different pictures, text or diagrams around the room. Put sheets of paper up next to the pictures for students to write their reactions or opinions on. In their study Mobley and Fisher (2014) posted various quotes for learners to respond to.

Cognitive Strategies: Opinion forming

Materials Needed: Pictures to facilitate discussion, and large pieces of paper.

Feasibility: This strategy would be very easy to use. Space may be an issue but if the furniture can be moved it would be easier to move around the room.

Effectiveness: Mobley and Fisher (2014) used this strategy to improve the learner's ability to formulate their own ideas based on what they had learned.

Role Playing/Simulation

Description: Using a role play or simulation of an event or organization can help the learner better understand the inner workings or motives of what is being simulated. Examples of this could be having the learners role play the different events surrounding a battle in a war or to have learners simulate being the US congress.

Cognitive Strategies: Learning through doing

Materials Needed: Potential props needed to complete the role play or simulation.

Feasibility: Simulation or role play may take more time to prepare and set up depending on the complexity of what is being simulated.

Effectiveness: This strategy would be effective at allowing learners to participate in a novel experience that encourages understanding of the intricacies involved in the situation that is being simulated. It allows the learners to understand more than just the information involved it allows them to potentially understand the thoughts and feelings of those involved and why things happened the way they did.

Hands on Experience

Description: When teaching a new procedure or how to do a certain task set up the lesson to allow learners to try to complete the task themselves. For example when learning CPR the classes have the CPR dummies so that the learners can get hands on experience and if they have to perform CPR in real life their first time ever attempting it is not on the person who needs it.

Cognitive Strategies: Learning through doing

Materials Needed: Depends on what is being learned

Feasibility: The feasibility of this strategy would depend on the type of space needed for the activity. There may need to be some preparation to find a space that would accommodate the number of learners and the tasks they need to complete.

Effectiveness: Dewing (2009) studied hands on training for nurses. She found that the hands on learning experience not only had learners paying better attention to what was being taught but it also lead to greater understanding of what was being taught to the learners. It also lead to better discussion since learners were able to talk about their personal experience and what they had learned from their mistakes and successes.

Conclusion

There is a need for change in adult learning. The current way of teaching makes it difficult for adults to focus and retain the material they are being taught. Kinesthetic teaching has been shown to be one solution to this problem. It is beneficial for a learner to learn through different modalities. A learner should not learn exclusively by visual, kinesthetic or auditory means. A learner benefits from learning in a mixture of all types of learning. With this in mind there should be more kinesthetic teaching being incorporated into learning. It is often looked over for the use for other learning modes. It has been shown on countless occasions that kinesthetic teaching is beneficial to the learning and retention of new material. Movement can be used for learning both the classroom and in the workplace.

The purpose of this project was to compile and discuss a list of kinesthetic strategies to help learners engage and focus on the learning material during presentations. Through the strategies created it has been shown that kinesthetic teaching in lectures is feasible. The strategies can be used in multiple settings and can be adapted to work for different subjects and class types.

There is a need for further research in kinesthetic teaching for adults is needed to determine the effectiveness of all the strategies presented. Research of the new strategies created and the strategies that were included from other studies need to be conducted in many varied formats to ensure the robustness of the research and the findings. This research can strengthen the previous findings and identify other difficulties with feasibility that were not mentioned in this project.

The strategies listed are some ideas for instructors to incorporate kinesthetic teaching into their presentations. The three different types of strategies listed in this projects allow for both instructors and learners to find strategies to help improve learning. Using kinesthetic teaching allows for a novel experience that promotes attention and retention of the material being presented. It not only encourages instructors to change their teaching style but also empowers learners to take control of their own learning as well.

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