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Kinematics teaching method

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ENGLISH-ABST:

An instructional approach that builds on stimulating the kinesthetic intelligence for the purpose of learning mathematics, reading, writing, language arts and science curriculum. At the heart of this methodology is the understanding that developing new knowledge (whether conceptual or informational) can best (for most people) take place when the new curriculum is related in some way (that is personal) to their lives. Incorporating the personal experience of the learner is facilitated by exploring the curriculum by verbally expressing ideas, understanding, emotions and thoughts related to the curriculum. A dance is then created and/or performed that expresses the ideas, understanding, emotions and thoughts. New and explored knowledge is expressed in writing.

NO-OF-CLAIMS: 20

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SUMMARY:

BACKGROUND OF THE INVENTION

[0001] The research done during the past twenty years in the areas of arts education, mathematics and cognitive development has demonstrated several principles regarding how to best facilitate improvements in academic achievement. The first is that learning that is tightly connected to individuals' life results in an increased motivation for learning. The second is that learning in the abstract delays learning as opposed to learning through concrete mediums. The third is that learning through one's most prominent intelligence enhances academic achievement.

[0002] Current systems rely heavily on visual stimuli (see Claude C. Couvillion; and Barry J. French; and Ann Edwards & Karen Goldberg) and external stimuli (see Michael Matias Merzenich; Barry J. French; and Impulse Technology LTD.). Some of the current systems are used for purposes other than enhancing academic achievement (see Michael Matias Merzenich). The systems that are aimed at enhancing academic achievement, while appropriate for some learners, exclude most because of the bias that is built into these systems.

SUMMARY OF THE INVENTION

[0003] The present invention is teaching method incorporating the following: [0004] a) expressing verbally: ideas, understandings, emotions and thoughts related to the curriculum; and [0005] b) creating/performing a dance that expresses the ideas discussed in (a). [0006] c) expressing new and explored knowledge in writing.

[0007] The integration of both mediums (the verbal and physical modes) has been found to help many students develop meaningful understandings of mathematics, reading, writing and language arts curriculum.

[0008] This process has been found to help many students and especially those who come from disadvantage neighborhoods, those diagnosed with Dyslexia, Hyper Activity Disorder and Attention Deficit Disorder, male and females, and those for whom English is a second language. This methodology has been tested and found to have significant positive effects on the academic achievement (as measured on written tests) of elementary grade children.

[0009] The present invention is based upon incorporating the personal experience of the learner and facilitating it by exploring the curriculum by verbally expressing ideas, understanding, emotions and thoughts related to the curriculum. A dance is then created and/or performed that expresses the ideas, understanding, emotions and thoughts. New and explored knowledge is expressed in writing. The present invention builds on all three of these principles to enhance academic achievement.

[0010] The present invention was designed to take into consideration tested research principles together with learners' potential barriers for learning. As such, the present invention has no biases that could prevent learners from building on their maximum cognitive potential. The present invention builds on stimulating the kinesthetic intelligence (which is inherent to everyone because without movement there is no life) to develop new knowledge that is then explored in other methods (such as those relying on audio, visual or tactile senses).

[0011] The implementation of the present invention is such that learners' potential barriers for learning (such as weak audio, visual or tactile senses) or neurological barriers (such as Dyslexia, Hyper Activity Disorder or Attention Deficit Disorder) can be overcome to help students demonstrate their best performance on written tests. Stimulation of

the kinesthetic intelligence is conducted first. Second to the instruction are verbal analysis and visual observations, and third is the writing and reading component of teaching.

[0012] The present invention not only helps most children improve their achievement on mathematics tests by two letter grades, but also allows most children to surpass the national achievement average on mathematics tests by 15 points, or 15 percent. Data demonstrates that all of the following groups benefit greatly from learning through the present invention:

[0013] 1) English as second language students;

[0014] 2) Students entitled to reduced or free lunch;

[0015] 3) Males;

[0016] 4) Females;

[0017] 5) Gifted;

[0018] 6) Students with disabilities

[0019] Research also demonstrates that the present invention helps increase both students' and teachers' motivation towards learning and teaching. The present invention differs from all current systems in that it is a multi-layer approach to teaching that begins with, and builds on, stimulating the kinesthetic intelligence for the purpose of enhancing academic achievement.

DRWDESC:

BRIEF DESCRIPTION OF THE FIGURES

[0020] FIG. 1 shows a flow chart of the present invention.

DETDESC:

DETAILED DESCRIPTION OF THE INVENTION

[0021] Correct implementation of the present invention requires a ten-step process. Skipping a step will present the students from reaching their highest possible academic achievement. The ten-step process is as follows, as shown in FIGURE.

Step #1:

[0022] All instruction begins with a verbal explanation of the curriculum that is to be taught/explored that session. The use of the blackboard or printed material is recommended only after students begin to dance.

Step #2:

[0023] The teacher helps students begin to develop a "shape bank" and "transition bank." A shape bank is developed by students creating shapes that they like with their bodies. The shapes can be large or small, tall or short, wide or narrow, on one foot, sitting, etc. These shapes should be written (documented) on paper by students, so that

there is a record of the shapes for later use.

[0024] The documentation of the shapes on paper is crucial for helping students develop a visual memory of three-dimensional shapes in a two dimensional mode (paper). In addition, this method helps instill confidence in students' own writing abilities and skills.

Step #3:

[0025] The "transition bank" is developed by students deciding on ways to connect one shape to another. Transitions can be distinguished by their pace (such fast or slow) and/or by their path in space such (as a curved or shortest path, a figure eight or a straight line). The transitions should be documented on paper by the students, so that there is a record of the transition for later use.

[0026] Each transition should have its own sign and students should be able to recognize those signs and explain the connection between the visual shape of the sign and what it symbolizes. This is necessary so that students begin to develop understanding the relationship between how shapes look and what they mean. An example for the sign representing a sharp transition could be represented as

[0027] The sign resembles a sharp transition in that its own writing requires a sharp action on the paper. An example for a curved transition could be represented as

[0028] The sign resembles a curved transition in that its own writing requires the creation of an arch on the paper.

Step #4:

[0029] The teacher presents the information or problem and frames a question to be explored both kinesthetically (by students putting together a dance phrase) and by writing information on paper. The framing of the question must include specific guidelines to which the dance should adhere. For example, when teaching students the properties of a line segment, the guidelines of the dance must refer to the floor path of the dance. The framing of the guideline would be as follows: [0030] Create a dance that begins in one point on the floor and continues in a straight line to a different defined ending point. The distance between these two points should be the shortest possible. Make sure that the way you dance your line segment dance represents this property of a line segment.

[0031] The teaching of one-thirds is another example. The teacher asks students to create a dance that is 21 counts long. Then instructs students to divide the total number of counts to three sections, so all three sections has equal number of counts. The teacher facilitates a discussion about the meaning of each section of the dance, i.e., "dividing" the dance this way creates three thirds. The teacher can then ask students to dance any one third of their dance, any two thirds of their dance, or all three thirds of their dance. The teacher should continue by asking how many counts are represented in each third of the dance. In between all of these instructions students should be allowed to dance before they say the answers aloud.

Step #5:

[0032] The teacher assigns students to work either alone or in groups of two, three or four. It should be emphasized that all present invention work requires both kinesthetic movements as well as written documentation on paper and verbal explanation of one's work.

Step #6:

[0033] The teacher allocates time for students to work, during which time the teacher moves among the groups and makes him or herself available to answer questions or provide clarification. It is important that if students have questions they are to frame those questions in complete sentences, and they are to be encouraged to help each other to

arrive at a complete coherent question.

Step #7:

[0034] The teacher calls for everyone's attention and asks each group to summarize its work process, new information they arrived at, conclusions, or what they might have learned from each other.

Step #8:

[0035] Teacher gives groups another five minutes to prepare their group demonstration to be presented both kinesthetically as well as in writing.

Step #9:

[0036] Each group demonstrates their work (kinesthetic, written and oral explanation) to the entire class. At the end of each demonstration the group verbally explains their process and a discussion is facilitated between the presenting group and the "audience" (their peers) with the purpose of clarifying and answering questions the "audience" might have.

Step #10:

[0037] The teacher concludes the session by explaining the homework and providing an example of how the present invention can be used at home to further the learning.

[0038] A successful implementation of the present invention requires not only understanding the process of implementing the present invention, but also understanding the subject matter taught. This means familiarizing oneself with the goals and objectives of the subject taught as defined by a State Department of Education.

[0039] Implementing the present requires understanding that the process takes time and that it has a particular structure that should be followed carefully, namely: [0040] 1) Verbal explanation of the activity and what should be done. [0041] 2) Demonstration of the kinesthetic principles students should use in their kinesthetic representations (dances). [0042] 3) Provide the students with enough time to listen and read the activity and design a solution process. [0043] 4) Remind the students that documenting their kinesthetic process on paper is essential for their success. [0044] 5) Encourage the students to build on their own thoughts, ideas, imagination and experiences when developing the "shape and transition bank."[0045] 6) Tell the students that meaningful learning requires continual repetition of kinesthetic phrases. [0046] 7) Explain to students that they should be able to visualize their own bodies moving in space before they perform their kinesthetic presentations. [0047] 8) Require the students to demonstrate their work as it is presented kinesthetically by performing it to the entire group as well as providing verbal explanation of the work the movements represent. [0048] 9) Explain to the students that looking at their peer's work will enhance their own. [0049] 10) Encourage the students to work together when appropriate in order to arrive at better solutions (both kinesthetic and written). [0050] 11) Insist that the students' work also be done in writing, so that the kinesthetic process will lead to a coherent understanding of the problem and its solution and should be written down.

[0051] As shown in FIG. 1, the process begins with step #1: teacher presents lessons' curriculum verbally. The process continues in progressive order steps #2 through #10. At any time after step #5 the teacher should (if necessary) include and use visual aids such as books, drawings, writing on the blackboard etc. to enhance the learning experience of students.

[0052] It is easy to fall into several traps when implementing the present invention. Make sure that you avoid the following mistakes that could delay your students' learning.

1. Never force all students to find one common movement to represent a letter.

[0053] For example, if you are teaching the alphabet letter O, do not expect it to be executed by all students raising both their hands over their heads, creating a round ball shape. Just as written repetition of an arbitrary letter shape does not help LD students remember the shape of that letter, an arbitrary and dictated choice of movements to represent a letter will similarly not be effective. For the choreographic process to be effective, each child must be given the freedom to decide what movements and body parts represent each letter, and to find a meaningful explanation or description to what that body part represents.

[0054] The teacher must ensure that the choices students make are meaningful to them by asking them to share the reasoning for their choices. If, for example the emotional aspect attached to each word or letter is weak (in the learning of letter shapes and spelling of words) often the learner will be unable to regenerate the letter shapes or sequence. If, after dancing the letter or the sequence of letters in a word several times, a student is not able to recall the shapes of letters and their sequence in a word, the teacher should assume that meaningful connections were not used. The learner is then asked to draw upon other experiences that are powerful and repeat the process with new dance moves.

2. Do not allow a student to use different representations for the same alphabet letter. (This would be relevant when teaching the alphabet.)

[0055] The goal in using kinesthetic memory is to have the brain associate one kinesthetic shape with one letter; having two or more body moves for one letter could lead to confusion and frustration.

3. Do not assume responsibility for remembering each student's word associations, or signs for numbers, transitions or kinesthetic phrases.

[0056] At the beginning of the process, it should be made clear that the learners must find ways to remember their own work. The teacher reminds students that they can be more successful in this process if they record their kinesthetic movements on paper, drawing body shapes or sketching arrows to indicate direction and/or elevation of movements.

[0057] The following pages are a copy of the inventor's book, which focused on many details of the present invention.

[0058] The present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

ENGLISH-CLAIMS:
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I claim:

1. A teaching method, comprising: creating shapes; connecting said shapes with transitions; framing questions in terms of said shapes and said transitions; and responding to said questions with bodily movements intended to represent said shapes and said transitions.

2. The teaching method of claim 1, further comprising the step of verbally explaining the curriculum that is to be taught before said step of creating shapes.

3. The teaching method of claim 1, wherein said creating shapes results in a shape bank developed by students creating shapes that they like with their bodies.

4. The teaching method of claim 1, wherein said connecting said shapes with transitions results in a transition bank developed by students deciding on ways to connect shapes to other shapes.

5. The teaching method of claim 4, wherein said transition bank is based upon the pace of said shapes as created or

performed.

6. The teaching method of claim 4, wherein said transition bank is based upon the path of said shapes in space as created or performed.

7. The teaching method of claim 1, further comprising documenting said connecting said shapes with transitions on paper.

8. The teaching method of claim 1, further comprising assigning each of said transitions a sign.

9. The teaching method of claim 1, wherein said framing questions in terms of said shapes and said transitions has specific guidelines to which a dance should adhere.

10. The teaching method of claim 1, further comprising students working together in groups to develop kinesthetic representations of answers to said framed questions by sharing ideas and collaborating with each other.

11. The teaching method of claim 10, further comprising a teacher asking said students working together in groups to summarize work process, new information arrived at, conclusions, or that which they learned from one another.

12. (canceled)

13. The teaching method of claim 1, further comprising documenting said shapes on paper.

14. The teaching method of claim 1, wherein said shapes are expressible in terms of bodily positioning or movement.

15. A teaching method, comprising: developing shapes expressible kinesthetically; developing kinesthetic transitions between said shapes; framing questions for students to answer; responding to said questions by kinesthetic performances; and discussing and reflecting upon said kinesthetic performances.

16. The teaching method in claim 15, wherein said shapes are developed by students.

17. The teaching method in claim 15, wherein said kinesthetic transitions are developed by students.

18. The teaching method in claim 15, wherein said questions are framed by an instructor.

19. The teaching method in claim 15, wherein said kinesthetic performances are performed by students.

20. The teaching method in claim 15, wherein students create written responses to said questions, subsequent to said performances, that correspond to said performances.

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