ISSN 2324-7878 (online)
palrap.org

PaLA College & Research Division (CRD)

Pennsylvania Libraries: Research & Practice

Practice

Let's Get Moving!

Eight Ways to Teach Information Literacy Using Kinesthetic Activities

Alexandria Chisholm & Brett Spencer

Alexandria Chisholm is Reference & Instruction Librarian at Penn State Berks, aec67@psu.edu
Brett Spencer is Reference & Instruction Librarian at Penn State Berks, dbs12@psu.edu

Kinesthetic pedagogy uses physical movement to stimulate learning; recent studies in higher education increasingly reveal the effectiveness of kinesthetic activities (KAs) in college teaching. Accordingly, this paper suggests that academic librarians explore the use of kinesthetic activities in their instruction. Librarians have designed many excellent classroom activities based on other active learning pedagogies that happen to provide opportunities for some student movement. However, few librarians have intentionally incorporated KAs into their instructional design or contextualized their efforts within kinesthetic pedagogy. Nevertheless, some existing teaching methodologies discussed in library literature can offer a starting point for kinesthetic-conscious information literacy (IL) teachers. This article presents librarians with a menu of effective, evidence-based library activities documented in the literature along with practical advice from our trial-and-error experiences to enhance the kinesthetic benefits of these activities and manage student movement in the classroom.

Introduction

Information literacy (IL) teachers are always looking for new strategies to keep students engaged in learning. Going beyond database demonstrations and lectures, they experiment with a variety of active learning methods to build and maintain student interest, including class discussions, games, inquiry-based assignments, flipped classrooms, small group work, and interactive technologies. Another lesser-known approach is kinesthetic activities (KAs). While few library and information science (LIS) articles and books focus on KAs, studies in the education field have shown that encouraging a little hustle in the classroom can boost student learning. This article offers some ideas on getting your students moving in the library!

What is Kinesthetic Learning?

Kinesthetic learning, also referred to as tactile learning, is a method of active learning in which students are dynamically participating in their education through physical movements rather than passively absorbing information through their eyes and ears. Activities that incorporate kinesthetic learning principles consist of organized, complex, or vigorous motions that are more engaging than the traditional learning activities of typing on a keyboard, taking notes, working on a math problem, or taking a test. It promotes the acquisition of new knowledge through movement of the human body, as opposed to simply seeing demonstrations or listening to lectures (Castree, Kitchin, & Rogers, 2013). Another group of authors recently defined this motion-oriented approach to pedagogy in a clear, down-to-earth way: "At its core, kinesthetic learning gives students the opportunity to move out from behind their desks and to interact with their surroundings" (Mobley & Fisher, 2014, p. 301).

Typically, KAs are discussed as a tactic to specifically address the needs of individual kinesthetic learners, who often thrive when participating in activities that involve a significant degree of physical movement, such as lab experiments, archaeological digs, field trips, drawing pictures, developing blueprints, and manipulating objects. In classrooms, they may fidget and doodle when processing new information and tend to prefer group activities that allow interaction with others. They may also enjoy using their hands to aid in learning (e.g., counting fingers or drawing pictures), and they absorb content best when allowed short breaks of physical activity during class (Lengel & Kuczala, 2010).

Although KAs particularly benefit kinesthetic learners, movement helps nearly all students learn by strengthening cognitive functioning, increasing motivation, enhancing the learning state, alleviating stress, and engaging more of the senses (Lengel & Kuczala, 2010). Experts note that KAs prevent blood from pooling in the legs, caused by long periods of sitting, and increase circulation to the brain—thereby feeding the brain the oxygen that it needs to learn effectively (Lengel & Kuczala, 2010). In recognizing the mind-body connection, instructors who use KAs are *physiologically* facilitating the process of learning.

Why Kinesthetics in the Academic IL Classroom?

Most of us can remember participating in KAs—crafting items in social studies classes, using puppetry to learn new ideas, or standing up and stretching to break up long class periods—in our K-12 schools. Kinesthetic learning, while not widely discussed in the academic library science literature, is beginning to build traction in higher education. Increasingly, college faculty are discussing kinesthetic pedagogy, adapted to adult audiences. Faculty in various disciplines, including political science, nursing, physics, engineering, and physiology, are initiating the development and assessment of KAs in their classrooms (Breckler & Yu, 2011; Mobley & Fisher, 2014; Mylott, Dunlap, Lampert, & Widenhorn, 2014; Tranquillo, 2008; Wagner, 2014).

With increasing amounts of interest and research on KAs in higher education, academic librarians should explore kinesthetic applications in IL teaching. However, minimal research exists in the LIS field specifically on the kinesthetic dimensions of library instruction, as a search of *Library Literature and Information Science* and related databases show. Existing LIS research suggests that active learning leads to improved and longer lasting learning outcomes and improved psychological outcomes, including the enhanced perceptions of librarians (Detlor, Booker, Serenko, & Julien, 2012). These outcomes will also likely result from implementing KAs, a subset of active learning. Beyond increased engagement and advantageous perceptions, one of the only LIS articles to formally address kinesthetic learning found that KAs are correlated with a marked improvement in student performance in one-shot library instruction sessions (Bryan & Karshmer, 2013).

Librarians should select IL teaching techniques with a greater emphasis on activities that spur physical movement—in addition to other models of active learning—to leverage the benefits that KAs can bring to the college

classroom. The energy KAs inject into sessions can keep students focused on dynamic group activities and engage them in their learning while creating a positive impression and experience of the library and librarians, especially important for students just starting out in college.

Fortunately, librarians have created many classroom activities that happen to involve physical movement, perhaps using other active learning techniques like game theory, interactive techniques, flipped classroom methods, or inquiry-based learning. Librarians should reflect on these activities by shifting focus onto their movement-based characteristics, consider ways to optimize their kinesthetic properties, and share ideas for new KAs. This article presents a variety of specific, real world examples of KA-powered library teaching. In the recent article, "Ditching the Desks," Mobley and Fisher (2014) offer their fellow social science professors a concise selection of KA ideas that the two authors had used themselves, witnessed colleagues use, or participated in when they were college students. This article follows the same approach.

General Tips on Using KAs in the Classroom

Despite the obvious benefits, KAs are more appropriate to use with some groups of students than others. Motion-based activities lend themselves to fun, spirited games that are an excellent way to introduce material to first-year students. Before having your students jump up from their seats, consider these tips when using KAs:

- Experiment with a simple KA near the start of the session. If students respond positively, continue with additional activities. If apathetically or negatively, use other methods.
- Some topics and concepts lend themselves more easily to KAs than others. Focus on the best pedagogy, kinesthetic or otherwise, to achieve your learning objectives.
- Although KAs can spice up dull instruction, they must serve a clear purpose and contribute to your learning objectives. Use KAs sparingly and appropriately.
- KAs often involve large numbers of students jostling around the room, which can feel chaotic and difficult to manage if you have never tried the activity before! If a new activity feels daunting, consider co-teaching with another librarian in a trial run.
- Every class has its own dynamic, and KAs can easily lose their pedagogical focus with certain audiences. Include post-activity discussions with the class or in small groups to help students remember the goal of the activity and put the learning objectives into context. Group discussions can help you assess the class' IL needs.
- Assess your KAs to see how effectively they meet your learning objectives and modify accordingly.
- Always consider how to modify the KA so it can accommodate students with any type of limitation.

Eight Ideas for Incorporating KAs into IL Instruction

These KAs reflect our experiences as well as observations or notes from seasoned colleagues who have created effective kinesthetic IL activities. While we did not create each of these activities from scratch, we have used and adapted these techniques through trial and error. Each category is meant as a general template for implementing KAs, not as a specific lesson plan. Most can be easily adapted to your content and fit within a typical 50-minute one-shot session. For each KA, we include a sample of books and articles for "Further Inspiration" that exemplify versions of these activities.

Relay Races

Relay racing is a team-based approach that can be used in many ways to engage students in IL instruction. Whether it is familiarizing students with tools within library databases (e.g., How can you email an article to yourself from the database?) or quizzing students on skills taught during the session (e.g., I am researching the effects of marijuana legalization on adolescent youth. What are the main search terms from this research question?), the relay race model can add a fun, competitive edge while also providing informal, in-class assessment.

Start the race by dividing students into teams and putting piles of activity cards for each team on a table in front of the class. Instruct the teams to complete the activities on the cards one card at a time by "racing" back and forth from the table—turning in their completed card and taking a new card—until they have finished the entire pile.

Tips for relay races:

- Prepare cards with your questions or activities ahead of time.
- Number the questions so you can hand them out successively.
- Laminate cards, so they can be used in multiple sessions and survive fast-paced use.
- Color code cards for each team to help distinguish which group needs which card.
- Ask teams to assign a "runner" and a "recorder," so there is organized chaos.
- Leave a few minutes at the end of class to review answers and cover concepts that gave students trouble.
- Offer prizes in the form of swag or candy!

Further Inspiration

Cuthbertson, W., & Ellis, L. F. (2014, May). *The art of the win: Engaging students in citing sources*. Presentation at the 42nd Annual LOEX Conference in Grand Rapids, MI. Retrieved from http://www.loexconference.org/2014/sessions.html

Ellis, L. F., & Falcone, A. (2011). Library quest: A game for understanding database searching. In T. R. McDevitt (Ed.), *Let the games begin! Engaging students with field-tested interactive information literacy instruction* (pp. 50-52). New York: Neal Schuman Publishers, Inc.

Scavenger Hunts

In today's world of digital information, students often sit inertly at a computer during an IL session. Incorporate a scavenger hunt to keep the blood flowing and help students learn about electronic and print collections. Ask students to locate articles from databases, facts from your website, books from your collections, and service points within the physical library.

Tips for scavenger hunts:

- Consider pop culture themes like Monopoly, Zombie Attack, Survivor, The Amazing Race, and sports to tie the activity together —an approach especially helpful for classes with no course assignment.
- Avoid activities that may stimulate movement but lack a clear learning purpose (e.g., Having students count the number of stairs between the 2nd and 3rd floors of the library or dash to the stacks to hunt for a book with an orange cover).
- Test-drive the scavenger hunt by asking student workers to test it. Fix any bugs, and note how much time each activity takes.
- Tap into the knowledge of your upperclassmen student workers! Ask what they wish they would have known as freshman or which services other students do not know about but would find helpful. Perhaps have your student workers create scavenger hunt activities, since they have an excellent perspective as both students and library employees.

- If you are short on time, encourage teams to divide the tasks to speed up the hunt!
- Give students a time limit and stagger the order of each group's scavenger activity, so 30 students are not in the same location.
- Instruct students to return to the room a few minutes before the end of class even if they are not finished with all activities, so the class can have a wrap-up discussion. If the activities are staggered, at least one group can address each activity.
- Coordinate the hunt with a faculty member.
- Award prizes to all groups who complete most of the activities.

Further Inspiration

Goldman, C., Turnbow, D., Roth, A., Friedman, L., & Heskett, K. (2016). Creating an engaging library orientation: First year experience courses at UC San Diego. *Communications in Information Literacy*, *10*(1), 81-98. Retrieved from http://www.comminfolit.org

Kraft, A., & Williams, A. F. (2016). #Shelfies are encouraged: Simple, engaging library instruction with hashtags. *College & Research Libraries News, 77*(1), 10-13. Retrieved from http://crln.acrl.org

Rugan, E. E., & Nero, M. M. (2013). Library scavenger hunts: The good, the bad, and the ugly. *Southeastern Librarian*, *61*(3), 7-10. Retrieved from http://digitalcommons.kennesaw.edu/cgi/viewcontent.cgi?article=1479&context=seln

The Indiana Jones Approach

Indiana Jones, who circled the globe digging up artifacts, inspires this KA that fosters evaluative skills, allowing students to explore physical spaces and manipulate objects. Arrange a themed display on a topic (or use your library's special collections or archives). For example, if the class is researching the American Civil War, create a hands-on exhibit with "artifacts" about the conflict, including books, DVDs, posters, as well as printouts of historic newspaper articles, political cartoons, photos, pamphlets, and diary excerpts. Arrange the sources over a large area or room with some items on high shelves and some on low shelves to encourage students to walk around, stoop down, stand up, engage with items, and interact with each other. Direct students to circulate around the "excavation," unearth interesting artifacts, create citations, or write an impromptu reaction paper.

Tips for the Indiana Jones approach:

- Offer a rubric that students can use to evaluate artifacts, asking them to discuss format, time period, bias, authority, accuracy, and relevance. The American Social History Productions' website, History Matters, cited below offers many analysis questions that you can adapt.
- Group artifacts by theme or time period.
- Pair artifacts that offer opposing viewpoints to spark critical thinking.
- Bookmark relevant content in books or magazines.
- Tell students to skim books or watch a few minutes of a video to form a quick reaction.
- Consider allowing students to work in teams on one artifact to increase engagement.
- Ask the course instructor to connect a larger class project to the activity (e.g., One instructor directed her students to use their artifact reaction papers as springboards for their formal research papers).

Further Inspiration

American Social History Productions. (2017). Making sense of evidence. Retrieved from http://historymatters.gmu.edu/browse/makesense

Kuglitsch, R. (2016, December 12). Challenging conventions in the sciences using historical sources [Webinar]. *ACRL Science & Technology Section Information Literacy Chat*. Retrieved from https://towson.webex.com/towson/lsr.php?RCID=fb261e35e6eb604d8b94a873ba0e765b

Card Games

Creating and using a set of original cards to facilitate an activity can encourage critical thinking in a tactile manner with either individuals or groups. Card games can be on a variety of IL topics—the limit is your imagination! You could create a deck of citation parts, the peer-review process, or the information cycle and have students arrange the elements correctly.

Tips for card games:

- Laminate the cards, so they are durable and reusable.
- Avoid text-heavy cards; instead, use visuals when possible. Be creative!
- Display activity directions on a projector or whiteboard to keep students on task.
- Monitor small group discussion during the activity to ensure student engagement.
- If appropriate, leave ample time for large group discussion.

Further Inspiration

Avery, S. (2011). Sources smackdown: Effectively evaluating information sources. In T. R. McDevitt (Ed.), *Let the games begin! Engaging students with field-tested interactive information literacy instruction* (pp. 90-92). New York: Neal Schuman Publishers, Inc.

Seeber, K. P. (2015). "Teaching 'Format as a Process' in an Era of Web-Scale Discovery." *Reference Services Review, 43*(1), 19-30. doi:10.1108/RSR-07-2014-0023. Retrieved from http://archives.pdx.edu/ds/psu/14514

Boolean Simon Says

Adding a kinesthetic approach to teaching Boolean operators is helpful, because they are important but not interesting. Boolean Simon Says requires no materials, essentially using your students as human search results and their physical and personal characteristics as metadata. For example, ask students, "Stand if you are a college student. Remain standing if you are a college student AND wearing glasses." Continue with several characteristics and "reset" the game for each operator to demonstrate how that operator impacts searches.

Tips for Boolean Simon Says:

- Include visuals with your directions (e.g., a slide presentation with the characteristics listed and accompanying Venn diagrams) to further illustrate how Boolean logic works.
- Follow immediately with a database demonstration, so students can make a concrete connection between the activity and how it impacts search results.
- Read the crowd to assess the reaction and comprehension of your students.

Further Inspiration

Odlevak, J. (2009). Boolean Simon Says. In R. L. Sittler and D. Cook (Eds.), *The Library Instruction Cookbook*. Chicago, IL: Association of College and Research Libraries.

Stations

Stations are a simple active learning technique that gets students moving around and engaged in the responses of their classmates. You will need flip charts, whiteboards, or other writing surfaces posted in various places around the classroom. At each station, post questions, prompts, or statements relating to IL topics. Then, send

individuals or small groups to read and reflect on what others have contributed and write responses. For example, post several research questions and have students identify the main keywords; subsequent groups can brainstorm additional or alternate keywords. Questions could test research skills, such as "Combining keywords with AND narrows your search results: True or False," and students vote for the correct response. Stations offer a simple assessment of knowledge and skills, either prior to the session or after introducing an IL topic.

Tips for Stations:

- Give yourself time to set up the classroom.
- Thoughtfully choose the questions or prompts, such as all having a unifying theme or practical use, whether assessing prior knowledge or brainstorming search terms.
- Ensure students are able to read and respond but do not have to linger at the stations.
- Leave time for a large group discussion after the activity. This wrap-up allows you to clarify any muddy points and students to hear the thoughts of their peers.

Further Inspiration

Kapp, K. (2016, August 10). *How to increase learner engagement* [Lynda.com online course]. Retrieved from https://www.lynda.com/Classroom-Management-tutorials/How-Increase-Learner-Engagement/473889-2.html

Staab, C. (1991). Classroom organization: Thematic centers revisited. *Language Arts, 68*(2), 108-113.

Drawing

Drawing is a common KA used in K-12 classrooms to keep students engaged and can be used creatively in many learning activities. Academic librarians can also leverage the tactile experience of drawing in the IL classroom. For example, ask students to draw a concept map to develop their topic or have them draw pictures in response to information literacy questions. Brier and Lebbin (2015) provide specific examples of these questions and reproductions of student drawings.

Tips for Drawing:

- Divide students into groups, give each group a topic, and ask them to a draw on one of the large flipcharts around the room.
- Encourage students to draw pictures and text boxes on concept maps.
- Assign a database as a topic to each group. Ask groups to draw a picture symbolizing the content of that database (e.g., A group once drew a picture of a teacher to represent ERIC).
- Ask students to explain the differences between scholarly and popular sources by drawing the answers.

Further Inspiration

Brier, D. J., & Lebbin, V. K. (2015). Learning information literacy through drawing. *Reference Services Review, 43*(1), 45-67. doi:10.1108/RSR-08-2014-0030

Cannon, K., Hamelers, R., & Jarson, J. (2016, July). *Moving beyond finding and searching: Putting the framework to work in deepening information literacy learning*. Presentation at the PA Forward Information Literacy Summit, State College, PA. Retrieved from https://www.palibraries.org

Colosimo, A. A., & Fitzgibbons, M. M. (2012). Teaching, designing, and organizing: Concept mapping for librarians. *Partnership: The Canadian Journal of Library & Information Practice & Research*, *7*(1), 1-15. doi: 10.21083/partnership.v7i1.1800

Brain Breaks

Brain breaks allow students to do a fun, physical activity for a few moments; often the activity has some relevance to the class topic. In long instruction sessions, giving the gray matter a breather can help material sink in with students. In fact, experts explain brain breaks allow "the hippocampus (the part of the brain that is responsible for the conversion of working memory to long-term memory) the opportunity to process and consolidate the content that was previously taught" (Lengel & Kuczala, 2010, p. 65). In short sessions, a brain break can reinvigorate a class that has become dull and give you a chance to address individual questions while the rest of the class gets some mental refreshment.

Tips for brain breaks:

- Keep brain breaks short, no more than three minutes.
- Consider simple, traditional games like paper-rock-scissors that are easy, fast, and do not require much explanation, since most people are already familiar with the rules.
- Make statements about the concepts you have taught. Ask students to go to one side of a room if they strongly agree, the opposite side if they strongly disagree, and somewhere in the middle if they kind of agree or disagree (i.e., human Likert scales).
- Lead a game of Search Term Taboo or Library Term Taboo. Give one student a card with a main word at the top, and a list of five more words that they cannot call out to the group who will try to guess the main word. This game can help students consider keyword choices when searching or recall important parts or terms related to the library.
- Pre-arrange to have balloons lying around the classroom. Allow students to toss the balloons back and forth for a few minutes while you walk around and answer questions.
- Encourage students to applaud each other in creative ways at various points in the session as mini-breaks. Ask individuals to answer questions or share their searches, and then ask the class to applaud them with hand-clapping, giving two-thumbs up, having students give high-fives to a neighbor, raising fists (like at a ball game), or doing "the wave" around the classroom. Get creative!

Further Inspiration

Desautels, L. (2015). Energy and calm: Brain breaks and focused-attention practices. Retrieved from https://www.edutopia.org/blog/brain-breaks-focused-attention-practices-lori-desautels

Lengel, T., & Kuczala, M. S. (2010). *The kinesthetic classroom: Teaching and learning through movement*. Thousand Oaks, CA: Corwin: A Sage Company. (Especially Chapter 5).

Conclusion

This menu of KAs will hopefully inspire librarians to evaluate and modify their current IL activities in order to leverage the many benefits of kinesthetic learning. From enhanced learning outcomes to retaining students' attention by adding an element of fun, KAs may be the ultimate form of active learning. Few things grab student attention more than putting a class in motion, creating a positive classroom experience for both instructors and learners. Activities like relay races and themed scavenger hunts offer ways to supercharge IL learning and activate both the mental and physical processes of learning! In a day often packed with multiple courses, pumping the brain with fresh oxygen through creative applauses or allowing for short brain breaks helps students refresh themselves, so they can better absorb key concepts while also counteracting library anxiety with a little levity. Card games, artifact analysis, drawing, and other KAs also help students absorb and remember the concepts they learned by using their full range of learning mediums: visual, auditory, and tactile. Using KAs increases engagement with the learning material and sets a tone for

IL instruction that paints the library and librarians in a positive light, especially for freshmen students. So, identify a KA that reinforces an IL concept—and keep everybody moving and learning!

References

Breckler, J., & Yu, J. R. (2011). Student responses to a hands-on kinesthetic lecture activity for learning about the oxygen capacity of blood. *Advances in Physiology Education, 35*(1), 39-47. doi:10.1152/advan.00090.2010

Brier, D. J., & Lebbin, V. K. (2015). Learning information literacy through drawing. *Reference Services Review, 43*(1), 45-67. doi:10.1108/RSR-08-2014-0030

Bryan, J. E., & Karshmer, E. (2013). Assessment in the one-shot session: Using pre- and post-tests to measure innovative instructional strategies among first-year students. *College & Research Libraries, 74*(6), 574-586. doi:10.5860/crl12-369

Castree, N., Kitchin, R., & Rogers, A. (2013). Kinesthetic learning. In *A Dictionary of Human Geography*: Oxford University Press. Retrieved from http://www.oxfordreference.com/view/10.1093/acref/9780199599868.001.0001/acref-9780199599868-e-1004

Detlor, B., Booker, L., Serenko, A., & Julien, H. (2012). Student perceptions of information literacy instruction: The importance of active learning. *Education for Information, 29*(2), 147-161. doi:10.3233/EFI-2012-0924

Lengel, T., & Kuczala, M. S. (2010). *The kinesthetic classroom: Teaching and learning through movement*. Thousand Oaks, CA: Corwin: A Sage Company.

Mobley, K., & Fisher, S. (2014). Ditching the desks: Kinesthetic learning in college classrooms. *The Social Studies, 105*(6), 301-309. doi:10.1080/00377996.2014.951471

Mylott, E., Dunlap, J., Lampert, L., & Widenhorn, R. (2014). Kinesthetic activities for the classroom. *The Physics Teacher, 52*(9), 525-528. doi:10.1119/1.4902193

Tranquillo, J. (2008, June). *Kinesthetic learning in the classroom*. Paper presented at American Society for Engineering Education 2008 Annual Conference & Exposition, Pittsburgh, Pennsylvania. Retrieved from http://peer.asee.org/3389

Wagner, E. A. (2014). Using kinesthetic learning strategy to engage nursing student thinking, enhance retention, and improve critical thinking. *Journal of Nursing Education, 53*(6), 348-351. doi:10.3928/01484834-20140512-02