



Association for Educational
Communications and Technology

iTECH DIGEST

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Linking Research and Practice to Improve Learning

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Show Me Your Opinion: Perceptual Cues in Creating and Reading Argument Diagrams

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Good visualizations link perceptual cues to relevant information. Consider the argument diagram in Fig. 1 (see p. 4). The text in this diagram shows a standpoint on top, arguments in favor and against this standpoint, as well as supports and rebuttals of arguments in boxes. Color is used to differentiate between arguments in favor and against the statement, lines are used to show how arguments are related, and location is used to indicate order and importance of arguments. These perceptual cues likely contribute to the comprehensibility of the diagram, at least when applied well. As Scheuer et al. put it: “the quality and readability of argument diagrams depends on how skillfully users organize and spatially arrange information.” In other words, although the text is necessary in order to understand what the argument is about, the benefit of argument diagrams compared to an argumentative text may lie precisely in its perceptual cues. Although the theoretical benefits of argument diagrams mentioned by researchers do not specifically address perceptual cues, they seem to be important....

The problem is that we do not know whether perceptual cues aid comprehension of argument diagrams. We do not know which features are important in argument diagrams, nor do we know how and when people use them to construct or interpret argument diagrams.

This article is excerpted from *Instructional Science* 44: 335-357, published online June 22, 2016. Read the full text by logging in at the AECT website, <http://aect.org/>, and clicking on Publications. Note that all citations have been omitted from this excerpt.



In the remainder of this article, we discuss the results of two
continued on page 4

Are Integrated Portfolio Systems the Answer? An Evaluation of a Web-Based Portfolio System to Improve Preservice Teachers' Reflective Thinking Skills

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Electronic portfolios, or simply e-portfolios, have become a common practice in higher education.... [T]his study describes an integrated learning environment that combines a teaching practice model, described below, with web-based technology to aid in developing preservice teachers' reflective thinking skills. The e-portfolio software was designed and developed to support this teaching practice model that has been integrated into preservice teachers' practicum course experience. This study evaluates the effectiveness of this integrated learning environment with respect to the development of preservice teachers' reflective thinking skills. It also investigates the role of feedback instructions and the usability of this new portfolio software. More specifically, the purpose of this study was to examine: (a) the nature and frequency of reflective thinking indicators preservice teachers demonstrated using the new system, (b) whether there was a significant improvement in the number of high-level reflective thinking indicators over time, (c) whether the use of different feedback prompts influenced the number of high-level reflective thinking indicators, and (d) the usability of the e-portfolio software developed.



Motivated by the findings from the literature and our experience with several e-portfolio tools, the purpose of this study was to develop an integrated learning environment that combines a teaching practice model with web-based technology in the service of developing preservice teachers' reflective thinking skills. This technology-enhanced learning environment—a combination of newly developed web-based portfolio software and its accompanying teaching practice model—was named the BOUNCE System.

Because the system was designed to improve preservice teachers' reflective thinking skills, the effectiveness of the BOUNCE System was investigated by identifying and comparing the types of reflective indicators demonstrated by preservice teachers in two different data points (in the first and the second reflective cycle). Furthermore, this study also focused on the role of feedback instructions and the usability of this new portfolio software.



Reflection is a multidimensional sophisticated concept to characterize. Thus, both teaching and evaluating reflective thinking are challenges for teacher educators. The BOUNCE System portrays a technology-based learning environment suited for pedagogy of reflection. Moreover, reflective thinking indicators can be used to evaluate the reflective thinking development of preservice teachers. Researchers may examine whether reflective thinking indicators are useful in characterizing their data in different contexts and suggest revisions to them.

It is theorized that teachers go through a set of reflective thinking processes and levels. However, the progression is not necessarily linear.... Researchers also argue that reflective thinking influences the development of pedagogical content knowledge and self-efficacy beliefs.

This article appears in *Journal of Computing in Higher Education* 28: 236-260, published online March 1, 2016. Please read the full article by accessing Publications on the AECT homepage at <http://aect.org/>. Citations omitted.

NOTES & NEWS

ITFORUM OPPORTUNITY

AECT's ITFORUM is a way for instructional technology professionals to communicate between AECT Conventions. Activities include paper discussions, podcasts, weekly email updates, and employment opportunity listings. Check the News: <http://aect.site-ym.com/news/>.

INTERNATIONAL SUMMER RESEARCH SYMPOSIUM

The HKAECT-AECT 2017 Summer International Research Symposium will be held at the University of Hong Kong, in June 2017. Organizers are inviting papers. See <http://www.hkaect.org/hkaect-aect-2017/> for details.

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AECT offers an endorsement for non-degree academic certificate programs in the field that are rigorous and aligned with AECT standards. Check the homepage: <http://aect.org/>.

Calls for Papers, Proposals, and Participants

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AECT-Springer Online Major Reference Work, or MRW, offers theorists, researchers, and practitioners a unique opportunity to publish articles of substance in a "living" forum with the capacity to include interactive elements and to make ongoing modifications as new information emerges. Review the Call for Authors and consider developing a submission. The link is on the AECT homepage at <http://aect.org/>.

Call for Papers

The AECT flagship practitioner journal, *TechTrends*, is seeking manuscript submissions, including from international and newer authors. See the Instructions for Authors online by clicking on Publications on the AECT website: <http://aect.org/>.

AECT's premier research journal, *Educational Technology Research and Development (ETR&D)* also welcomes submissions on topics of interest from new and experienced researchers.

Call for Speakers/Writers

Looking for a keynote speaker or someone to write for your publication, or want to be that speaker or writer? Check out the new AECT Speakers/Writers Bureau at: <http://aect.org/>.

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AECT, in collaboration with Springer, has announced a new series of books and monographs under the title, "Educational

Communications and Technology: Issues and Innovations." The series will extend AECT's ongoing publications with Springer and offer the Springer Briefs innovative format to AECT authors and contributors. More information for potential authors at <http://aect.org/>.

Call for Contributions

What's the payoff for contributing to AECT's *Handbook of Research on Educational Communications and Technology*? For one thing, the Fourth Edition has been one of the top 25% most downloaded ebooks in the relevant Springer collection in 2015 with a whopping 420,673 chapter downloads since the Handbook was published in 2013. Write for AECT publications and get read. To get your electronic copy and learn about how you can be part of the next edition, click on the link on the homepage at <http://aect.org/>.



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AECT Mission

The mission of the Association for Educational Communications and Technology is to provide international leadership by promoting scholarship and best practices in the creation, use, and management of technologies for effective teaching and learning in a wide range of settings.

Goals:

- Define the disciplines and professional activities that comprise the field of educational communications and technology.
- Serve and represent professionals in the field and support professional growth.
- Advance scholarship and practice that contribute to and enlarge the knowledge base of the field.
- Promote policies that ensure the humane and ethical use of educational communications and technology at all levels, from the personal through the international.

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studies of argument diagrams in which (i) arguments (for and against) are represented, that are (ii) produced and perceived by novices using self-styled visualization techniques, and (iii) that are aimed to convince the audience of a certain point of view. In study 1, we take the production perspective: How do people use and produce space, graphical and textual cues to express their argumentative position in an argument diagram? In study 2, we take the perception perspective: How do others interpret these cues in an attempt to read off the argumentative position?

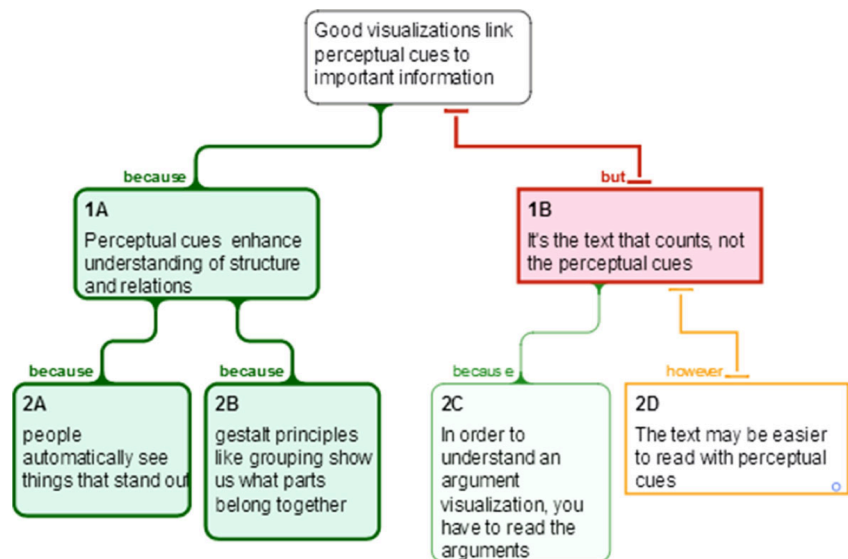


Figure 1. Argument visualization, created by Rationale™

In our production study, we saw that the framework of primary metaphors, Gestalt principles and cultural conventions enables us to shed light on what lay-people do when asked to spontaneously create a for or against argument diagram. All but one producer created some kind of graphic display, most of them having a well-formed shape. In squares, they used a left-right or top-down structure, and in circles, they started in the middle. Most of the producers use spatial cues to put similar arguments together following the Gestalt law of proximity; in square-shaped diagrams they position the arguments of their own position in accordance with their writing experiences (from left to right and top to bottom). They use arrows to point to their standpoint, and more often use boxes to highlight their own arguments....

In our perception study, we were not surprised to find that participants use text (if available) to interpret the diagram. After all, participants have to judge an argument, and therefore the content of the arguments is important.

Editor's note: Like most excerpts, this one cannot do justice to the full study. Readers are advised to consult the full text online.

Member Access Publications

Educational Technology Research and Development (ETR&D)

Bimonthly

ISSN: 1042-1629 (print)

ISSN: 1556-6501 (electronic)

Journal no. 11423

Springer US

TechTrends

Bimonthly

ISSN: 8756-3894 (print)

ISSN: 1559-7075 (electronic)

Journal no. 11528

Springer US

Instructional Science

An International Journal of the Learning Sciences

Bimonthly

ISSN: 0020-4277 (print)

ISSN: 1573-1952 (electronic)

Journal no. 11251

Springer Netherlands

International Journal of Designs for Learning

Semiannual

ISSN: 2159-449X

(electronic)

AECT

Journal of Applied Instructional Design

Semiannual

ISSN: 2160-5289

(electronic)

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This is a partial list. Please visit the AECT website <http://aect.org/>, log on, and click on Publications for instant access to these and many other resources.

Convention Time!



*Westgate Resort and Casino, a Las Vegas landmark.
Site of the 2016 AECT International Convention.*

Pack your bags, grab your plane tickets, and join your colleagues in Las Vegas. The 2016 AECT International Convention kicks off on October 17 with a full day of workshops.

There will be opportunities to meet colleagues, share ideas, and network galore throughout the convention. You won't want to miss the first general session on Tuesday at 3:45 p.m., presented by Cirque du Soleil on technology and training. Prepare to be wowed! Wednesday's general session is on technology and inquiry at 4:45 p.m., and Thursday's includes the AECT membership meeting and foundation awards.



Evenings are all free for you. Plan to explore the multifaceted sights and sounds of Las Vegas. The world-famous "Strip" is yours to stroll to your heart's content.

There's a saying that what happens in Vegas stays in Vegas. We hope that's not the case for you. We're sure you'll want to take home new ideas, new contacts, and new knowledge. We're confident that you will be "Learning from Las Vegas" every day.

Go to the program schedule to get an overview at <http://convention2.allacademic.com/one/aect/aect16/>

The online program has both search and browse features—and you can create a personal schedule to help you get where you want to be at the right time.

Time for Systemic Change in Public Education

Last year AECT issued a policy brief advocating systemic change for schools, meaning that schools should “engage in a process of transforming themselves from standardized, time-based, teaching-centered instruction to customized, attainment-based, learning-centered instruction. This transformation should utilize technology extensively throughout school operations, particularly in instructional settings.”

According to Harris and Walling (2016), “The national narrative of school is outmoded. *Narrative* refers to how education writ large—i.e., ‘school’—is conceived and actualized through a representation of learning that reflects an overarching definition and its ramifications for prac-



tice.” That narrative is stuck in an Industrial Age conception of schools as factories and students as products to be sorted and selected, a process furthered by over-reliance on standardized tests.

Moreover, the past three decades have witnessed a steady erosion of our nation’s historic commitment to public education as the surest safeguard of our democracy. President Franklin Delano Roosevelt said, “Democracy cannot succeed unless those who express their choice are prepared to choose wisely. The real safeguard of democracy, therefore, is education.” Our national security is seriously threatened by moves to privatize public education.

U.S. public education, from early childhood to higher education, is suffering not only from decades-long lack of investment in human and physical resources but also from an absence of intellectual investment. Our education system is stalled in an Industrial Age factory model that

treats learners as commodities rather than as individuals. We will not realize today’s Digital Age potential by treating new technology as an add-on or panacea for our broken system but, rather, by transforming the very structure of that system.

Pockets of change are occurring, but the challenge remains one of transforming public education as a whole. University of Colorado Denver professor Scott McLeod, an award-winner in school technology leadership, states it plainly: “How do we move beyond isolated pockets of innovation and start changing things at a systemic level so that most students and most staff start to experience different kinds of learning and teaching?” (Roscorla 2016).

One of the planks in the Democratic party’s platform this election year addresses the high cost of higher education. The goal of debt-free college is lofty and laudable. However, bold investment in higher education can only make the greatest difference if a similar investment is made in elementary and secondary education. Our children’s schooling is the foundation for higher learning for our young adults, and that foundation must be strengthened.

Harris, P., and Walling, D.R. (2016). Changing the narrative of school: Toward a neuro-cognitive redefinition of learning. Presented at AECT Summer Research Symposium, Bloomington, Indiana, July 21, 2016.

Roscorla, T. (2016, July 29). Mission-minded: Ed tech leader continues quest to create relevant learning environments. *Converge* (Center for Digital Education).