

**NOMINATION PORTFOLIO OF: JOSEPH A. MAYO
REGENTS' SCHOLARSHIP OF TEACHING AND LEARNING (SOTL) AWARD**

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Foreword: Nomination Letter

November 27, 2018

University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334-1450

Re: Dr. Joseph A. Mayo

Regents' Scholarship of Teaching and Learning (SOTL) Award Committee:

It is my honor to recommend Dr. Joseph A. Mayo for the Regents' Scholarship of Teaching and Learning (SOTL) Award. Gordon State College is indeed fortunate to have a professor of the caliber of Dr. Mayo on our faculty. He possesses that rare combination of skills that enables him to be an outstanding teacher while also being an outstanding researcher. He is not only a much-sought-after professor by students, but is an inspiration to our entire faculty because of his dedication to the pursuit of knowledge, his practical application of research to the educational process, and his overall commitment to our students. It is not an exaggeration when people on campus refer to Dr. Mayo as a "national treasure" on our campus.

I have had the privilege of knowing and learning from Dr. Mayo since 2006. When I first began my career as an Assistant Professor of Psychology at Gordon State, Dr. Mayo was assigned as my official mentor. Now that I serve as Provost, I still consider him my mentor. I could not have asked for a better person to guide me as I became enculturated into the world of academia. He not only stands out as an outstanding role model for me as how a scholar conducts oneself, but he has always taken the time to personally assist me with my own development. This assistance has ranged from seemingly trivial issues such as classroom management to significant issues such as providing in-depth feedback for conference presentations. One could say that I am biased. But this special treatment is not unique to me. If we were to randomly pick 10 professors at Gordon State, almost all would say they have been impacted by Joe Mayo and his research. This includes students, as in addition to his own classes, Dr. Mayo has taught literally hundreds of success workshops to students on our campus and across the state. There can be no doubt about it: when one thinks of SOTL, one thinks of Dr. Joe Mayo.

As I mentioned at the beginning of this letter, it is indeed an honor to recommend Dr. Joseph A. Mayo for this award. I consider Gordon State College's students fortunate that someone of his knowledge and commitment is working for them, and I consider myself fortunate that he continues to be my mentor. Dr. Mayo is that rare professor I can hold up as a teacher and a researcher whom other faculty members should strive to emulate. The Board of Regents would be hard-pressed to find a more deserving recipient of this honor, so I recommend Dr. Joseph A. Mayo for the Regents' Scholarship of Teaching and Learning (SOTL) Award without any reservations.

Respectfully,



C. Jeffery Knighton, Ph.D.
Provost & Vice President for Academic Affairs

Teaching Philosophy Narrative

In the ongoing debate in higher education on how to improve student learning, consideration of the relative advantages and disadvantages of lecturing, assigning term papers, and other traditional classroom approaches often stirs divided opinions. This debate is especially relevant to undergraduate survey classes in which the lecture method is used heavily to cover the sheer volume of course content. Although conventional pedagogy assuredly holds a place in academe, I have come to favor a more performance-based means to enhance learning that involves the use of authentic assessment flowing logically from constructivist educational applications.

The constructivist model of teaching and learning has been a leading conceptual paradigm in post-secondary education for several decades. From a learning-centered constructivist perspective, students act as “architects of knowledge” who formulate their own meaningful changes in understanding by integrating new knowledge with information that already exists in their long-term memories. Drawing from a sizeable body of supporting research evidence, I have long relied on constructivist pedagogical techniques as viable strategies for engendering students’ cognitive advancement. Similarly, an equally convincing argument exists in the research literature that constructivist methods also develop students’ higher-level social competencies. From a purely cognitive standpoint, students steeped in constructivist learning hypothesize and investigate problems as they discover solutions for themselves. As social beings, they also learn to co-construct knowledge in dialogue with teachers and classmates.

As I have espoused in my own published SOTL work, constructivist teaching and learning converge in the practice of authentic assessment. At the same time that students are learning to solve applied problems and teachers are facilitating this process of authentic task-involvement, the solutions offered by students gauge their abilities to meaningfully apply knowledge. As such, students are encouraged to both create and use real-world examples to transfer their learning from classroom environments to situations that they experience in everyday life.

Consistent with my longstanding perspective that students are knowledge-seekers who constantly revise their learning repertoires across time, I design and weave constructivist educational applications into the fabric of my undergraduate classes in psychology, human services, and teacher education. These applications include autobiographical and biographical narration, analogical reasoning, case-based instruction, cooperative learning, scored group discussions, structured peer critiques for improving student writing, dialogue and role playing, concept mapping, and knowledge grids for studying personal and interpersonal systems of meaning. Using these educational platforms, I emphasize authentic over rote learning in fostering more contextualized and personalized knowledge construction. In a continuing effort to identify best teaching practices that push students in the direction of knowledge discovery, I have systematically examined the aforementioned pedagogical innovations within my own classes over the past two decades. Overall, the results of varied quantitative and qualitative analyses have consistently shown that authentically designed and assessed constructivist pedagogy compares more favorably than traditional didactics. These results apply to bolstering students' application, analysis, and synthesis of knowledge; creative expression; personal interest in the subject matter; and active and interactive participation in learning processes. By means of dissemination in conference venues and publication outlets that support SOTL, I routinely share the results of my classroom research with the teaching professoriate both within and beyond my own academic discipline. In the interest of brevity and recency, Appendix A includes a PDF download of my most-current SOTL publication—an eight-page empirical report appearing in a refereed journal published online through Columbus State University.

Evidence of the impact of my SOTL activities on teaching, learning, and assessment in my own and other academic disciplines

I began my career in higher education in 1988 with a brief stint in academic administration at Limestone College (Gaffney, SC), shortly after completing my doctorate in educational psychology at West Virginia University (Morgantown, WV). Over the past 29 years, I have served as a full-time faculty member at Gordon State College (Barnesville, GA), with a portion of the 1990s spent in an administrative faculty role. At Gordon State, my primary teaching responsibilities have encompassed first- and second-year psychology and psychology- honors offerings and upper-division classes that prepare aspiring human-service and teacher-education professionals within their respective baccalaureate programs. My annual teaching load has included 8-10 classes throughout the academic year, along with an average of 2 additional classes each summer term. In full support of Gordon State's teaching-centered mission, after stepping away from my administrative duties in the late 1990s, I established an active classroom-research agenda that coincides in a multitude of ways with reflective classroom practice as expressed through SOTL activities. The impetus underlying my SOTL pursuits derives from Boyer's (1990) expanded model of scholarship (discovery, integration, application, and teaching and learning) as embodied in the goals delineated by the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) that teaching should be public, open to critical evaluation, and usable to others.

For evidence of how my classroom research taps into the intersection of CASTL's goals and Boyer's stance on both scholarship of discovery (original research that advances knowledge) and teaching and learning (applying scholarly rigor to teaching practice), my systematic investigations of constructivist classroom innovations within my own classes have been published in numerous peer-reviewed journals. These journals include *Teaching of Psychology*, *Journal of Effective Teaching*, *Journal of Constructivist Psychology*, *Constructivism in the Human Sciences*, *Journal of Pedagogy and the Human Sciences*, *The Constructivist*, *Southeastern Journal of Psychology*, and *Perspectives in*

Learning. I have also coauthored an article on school psychologists' practices in the *Journal of the American Academy of Special Education Professionals*. Moreover, I am the author of *Constructing Undergraduate Psychology Curricula: Promoting Authentic Learning and Assessment in the Teaching of Psychology*, which was released in 2010 by the American Psychological Association (APA). Excerpted verbatim from the APA's publication website, Appendix B features three peer reviews of this SOTL book.

As impact evidence of my SOTL activities on teaching and learning in my own academic discipline, I am lead coauthor of several college-level psychology textbooks and accompanying study guides with a student-focused orientation toward higher-order learning. These books are currently in use for teaching general psychology (*Understanding Psychology, 5e*), life-span human development (*Principles of Life-Span Development: From Dawn to Dusk, 2e*), and applied psychology (*Selected Topics in Applied Psychology: Bridging Theory to Practice*). Additionally, Pearson Allyn and Bacon invited me in summer 2006 to compose 840 original, conceptually based, multiple-choice questions for distribution as online practice tests for introductory psychology students. Consistent with the 2002 iteration of the APA's *Undergraduate Learning Goals and Outcomes* for psychology majors, these questions canvass topics shared among the publisher's stable of introductory psychology texts and the APA's learning criteria.

From 2001 through 2011, I have contributed a dozen articles to *Psychology Teacher Network*, a widely read quarterly publication of the APA's Education Directorate. In the past year, I have also placed an article in Magna Publication's *The Teaching Professor*, a premiere newsletter of cutting-edge teaching information for more than 10,000 educators at colleges and universities worldwide. Furthermore, I have recently published a well-received "patch" (chapter) in the pioneering *Open Faculty Patchbook*—an open-access, online, quasi-textbook about pedagogical scholarship aimed at improving teaching and learning in colleges and universities around the world.

As revealed by my publication record in peer-reviewed journals, I subscribe to CASTL's goal that classroom research should be subject to critical evaluation. Therefore, along with my prior work as

associate editor for the *Southeastern Journal of Psychology* and my continuing service on the editorial board of the *Journal of Pedagogy and the Human Sciences*, I have served as an ad hoc reviewer for the *American Journal of Psychology*, *Journal of Educational Psychology*, *Journal of Constructivist Psychology*, *European Journal of the Psychology of Education*, and *Asian Pacific Education Review*. Between 1998 and 2000, I have also reviewed over 150 University System of Georgia (USG) teaching-and-learning grant proposals.

Confirmation of my support for CASTL's overarching goals that teaching should be both public and usable to others can be found in my longstanding history of presenting my SOTL work at regional, national, and international teaching conferences. Dating back to 2001, my SOTL papers have appeared in numerous teaching-conference proceedings, including the Teaching Matters Conference, Center for Scholastic Inquiry's (CSI) International Academic Research Conference, and SOTL Commons: Conference for the Scholarship of Teaching and Learning. Of particular noteworthiness, at CSI's 2015 International Academic Research Conference, my paper (*Applying Personal Construct Theory to Engage Undergraduates and Advance Their Critical Thinking*) was chosen among 170 submissions as best overall paper in the multidisciplinary track. On multiple occasions among the list of SOTL presentations on my condensed curriculum vitae, I have been invited to deliver addresses at teaching conferences, including the keynote address at the 2004 Georgia Conference on College and University Teaching.

Once again highlighting CASTL's emphasis on teaching as a public and usable endeavor, based on a broad spectrum of my SOTL activities, I have been invited to conduct faculty development workshops at colleges and universities both within and outside of the USG. Among these institutions are Georgia College and State University, Valdosta State University, (formerly) Georgia Perimeter College, Northwestern Technical College (Rock Springs, GA), and Beulah Heights University (Atlanta).

Insofar as Boyer's conceptualization of the scholarship of interaction is concerned, I have also worked in collaboration with faculty in other academic fields to synthesize components of my SOTL work

across disciplines. For example, I have conducted interactive workshops for faculty at Kennesaw State University, Dalton State College, and Gordon State College on cross-disciplinary uses of analogies as reflective educational tools. In addition, I have collected preliminary data on the instructional efficacy of concept mapping in a collaborative research project involving classes in both introductory psychology and biology at Gordon State College. I have also undertaken a hands-on workshop through Gordon State College's Math and Natural Science Forum Series on effective classroom uses of concept mapping. Moreover, I have been asked over the past two years to conduct training workshops for both faculty and students in Gordon State College's School of Nursing regarding proper construction and classroom applications of concept maps. This collaboration with the nursing program took place as it transitioned to concept mapping as its primary educational modality for care-plan management.

Consistent with Boyer's view of the scholarship of application that advocates for sharing discipline-specific expertise, I have devoted appreciable time in professional service to my home institution and its surrounding constituencies. I abide by what I learned early in my teaching career through many professional interactions with G. William (Bill) Hill, IV—Professor Emeritus of Psychology and former director of Kennesaw State University's Center for Excellence in Teaching and Learning—who stressed that it is our duty as the psychology professoriate to “give psychology away.” Since I started teaching at Gordon State College in 1989, I have conducted more than 200 workshops over a wide range of applied psychoeducational topics, including student success at all educational levels (preschool through college); workplace skills (e.g., team building, interpersonal communication, conflict resolution, leadership); and matters of interest to civic and community groups (e.g., self-motivation, memory enhancement). As an approved consultant through the Departmental Consulting Services of the APA's Board of Educational Affairs, I have also been asked to serve as an external reviewer for psychology programs at Spellman College (Atlanta), Cottey College (Nevada, Missouri), and Kalamazoo Valley Community College (Kalamazoo, Michigan). In recognition of my continuing contributions to the scholarship of application, I

was chosen to receive the 2014-2015 Harriet Tubman Legacy Award for service and dedication to the African-American Male Initiative Program at Gordon State College.

By concerted design, I have established a leadership role within the SOTL community. From 2005 through 2008, I served on the APA's Board of Educational Affairs National Task Force on Strengthening the Teaching and Learning of Undergraduate Psychological Science. This task force consisted of eight college and university professors throughout the United States who were selected on the basis of their varied contributions to the teaching of psychology. The shared work of this group led to publication of *Teaching, Learning, and Assessing in a Developmentally Coherent Curriculum*. I have also served on other national committees under the auspices of the APA, including the Steering Committee charged with planning a live, inaugural, interactive, online teaching conference in 2008. In comparable fashion, I have served on the Executive Council and Steering Committee charged with planning the teaching components of the 2007 and 2009 annual conferences of the Georgia Psychological Society. In addition, I continue to mentor faculty colleagues (new and experienced, on and off my home campus) who seek to engage in SOTL undertakings. Appendix C contains a letter of support from a faculty colleague positioned to comment on my mentorship relative to the educational impact of my SOTL activities.

In recognition of my enduring commitment to the multidimensional facets of SOTL, I received the 2003 Board of Regents' Research in Undergraduate Education Award (USG two-year and state-college sector). I also received the 2005 Wayne Weiten National Teaching Excellence Award of the Society for the Teaching of Psychology (APA's Division 2) based on demonstrated influence in interesting students in the field of psychology; development of effective teaching methods; outstanding classroom performance; and scholarly activity. In 2007, the APA's Division 2 honored my teaching and research accomplishments with a chapter devoted to my classroom experiences in the e-book, *The Teaching of Psychology in Autobiography: Perspectives from Exemplary Psychology Teachers*.

Condensed Curriculum Vitae of: Joseph A. Mayo
Gordon State College, 419 College Dr., Barnesville, GA 30204
Email: joe_m@gordonstate.edu

EDUCATION: Ed.D. (1987, 3.94 GPA) & M.A. (1983, 4.00 GPA), educational psychology, West Virginia University; B.A. (1981, *summa cum laude*), psychology & political science, Bloomsburg University of PA

EMPLOYMENT HISTORY: Gordon State College: 08/01-present **Professor of Psychology**; 08/98-07/01, **Associate Professor of Psychology**; 07/93-07/98, **Associate Professor and Chair of the Division of Business and Social Sciences**; 09/89-06/93 **Assistant Professor of Psychology**
Limestone College (Gaffney, SC): 09/88-08/89 **Associate Academic Dean** (off-campus programs)

SOTL AWARDS: 2005 Wayne Weiten College Teaching Excellence Award of the APA's Division 2; 2003 Regents' Research Excellence in Undergraduate Education Award (USG two-year/state colleges)

BOOKS AND INVITED BOOK CHAPTERS (books listed first):

1. Mayo, J. A. (2010). *Constructing undergraduate psychology curricula: Promoting authentic learning and assessment in the teaching of psychology*. Washington, DC: American Psychological Association.
2. Mayo, J. A., Bigner, J. J., & Grayson, T. (2017). *Principles of life-span development: From dawn to dusk* (2e). Redding, CA: BVT Publishing.
3. Mayo, J. A., & Ettinger, R. H. (2016). *Selected topics in applied psychology: Bridging theory to practice*. Redding, CA: BVT Publishing.
4. Mayo, J. A., & Ettinger, R. H. (2012). *Understanding psychology* (5e). Redding, CA: BVT Publishing.
5. Mayo, J. A. (2009). Constructivist pedagogical applications: Student-centered learning across the undergraduate curriculum. In S. A. Meyers & J. R. Stowell (Eds.), *Essays from E-xcellence in Teaching, (Vol. 8)* (pp. 19-24). Washington, DC: American Psychological Association.
6. Mayo, J. A. (2008). Repertory grid as a heuristic tool in teaching undergraduate psychology. In D. S. Dunn, J. S. Halonen, & R. A. Smith (Eds.), *Teaching critical thinking in psychology: A handbook of best practices* (pp. 127-135). Boston: Blackwell.
7. Mayo, J. A. (2006). Learning to teach, teaching to learn. In T. Benson et al. (Eds.), *The teaching of psychology in autobiography: Perspectives from exemplary psychology teachers (Vol. 2)*. Washington, DC: American Psychological Association. <http://teachpsych.org/resources/e-bookstia2006/tia2006.php>

PEER-REVIEWED JOURNAL ARTICLES:

1. Mayo, J. A. (in press). Comparing cooperative learning strategies in teaching assessment in early childhood education. *Journal of Teacher Action Research*.
2. Mayo, J. A. (in press). Analogy co-construction as a pedagogical strategy in life-span developmental psychology. *The Constructivist*.
3. Mayo, J. A. (2018). The efficacy of concept mapping as a learning tool in life-span development classes. *Perspectives in Learning, 17*(1), 45-52. <https://csuepress.columbusstate.edu/pil/vol17/liss1/5>
4. Mayo, J. A. (2017). Linking developmental themes to theories in the autobiographical narratives of life-span development students. *Journal of Effective Teaching, 17*, 5-15.
5. Mayo, J. A. (2017). Comparing constructivist learning assignments in research methods classes. *The Constructivist, 16*, 35-55. <http://acteducators.com/wp-content/uploads/2017/09/Constructivist-Fall2017.pdf>

6. Mayo, J. A. (2013). Socially constructed knowledge: Using cooperative learning in assessment instruction. *Journal of Pedagogy and the Human Sciences*, 3, 50-60.
7. Mayo, J. A. (2012). Technology's role in meaningful knowledge construction. *Journal of Pedagogy and the Human Sciences*, 1, 8-21.
8. Mayo, J. A. (2006). Reflective pedagogy through analogy construction. *Southeastern Journal of Psychology*, 1, 1-6.
9. Mayo, J. A. (2004a). A pilot investigation of the repertory grid as a heuristic tool in teaching historical foundations of psychology. *Constructivism in the Human Sciences*, 9, 31-41.
10. Mayo, J. A. (2004b). Repertory grid as a means to compare and contrast developmental theories. *Teaching of Psychology*, 31, 178-180.
11. Mayo, J. A. (2004c). Using case-based instruction to bridge the gap between theory and practice in psychology of adjustment. *Journal of Constructivist Psychology*, 17, 137-146.
12. Mayo, J. A. (2004d). Using mini-autobiographical narration in applied psychology to personalize course content and improve conceptual application. *Journal of Constructivist Psychology*, 17, 237-246.
13. Mayo, J. A. (2003a). Journal writing revisited: Using life-adjustment narratives as an autobiographical approach to learning in psychology of adjustment. *Journal of Constructivist Psychology*, 16, 37-47.
14. Mayo, J. A. (2003b). Observational diary: The merits of journal writing as case-based instruction in introductory psychology. *Journal of Constructivist Psychology*, 16, 233-247.
15. Mayo, J. A. (2002a). Case-based instruction: A technique for increasing conceptual application in introductory psychology. *Journal of Constructivist Psychology*, 15, 65-74.
16. Mayo, J. A. (2002b). Dialogue as constructivist pedagogy: Probing the minds of psychology's greatest contributors. *Journal of Constructivist Psychology*, 15, 291-304.
17. Mayo, J. A. (2001a). Life analysis: Using life-story narratives in teaching life-span developmental psychology. *Journal of Constructivist Psychology*, 14, 25-41.
18. Mayo, J. A. (2001b). Using analogies to teach conceptual applications of developmental theories. *Journal of Constructivist Psychology*, 14, 187-213.
19. Mayo, L. A., & Mayo, J. A. (2008, Winter). Evaluating childhood bipolar disorder: A survey of school psychologists' knowledge and practices. *Journal of the American Academy of Special Education Professionals*, 4-13. <https://eric.ed.gov/?id=EJ1139289>

SOTL CONFERENCES PRESENTATIONS:*

1. *Cooperative Learning: A Systematic Investigation of Two Group-Based Approaches to Teaching Assessment in Early Childhood Education*, CSI's International Academic Research Conference, Savannah, GA (Apr. 2018)
2. *Analogies as Participatory Learning Tools*, Innovation in Teaching Conference, University of Georgia, Athens, GA (Oct. 2017)
3. *Advancing Critical Thinking through Analogical Reasoning: Bridging Research, Theory, and Practice*, USG Teaching and Learning Conference: Best Practices for Promoting Engaged Student Learning, University of Georgia, Athens, GA (Apr. 2017)
4. *Using Dichotomous Meaning Dimensions to Cultivate Students' Critical Thinking Skills*, USG Teaching and Learning Conference: Best Practices for Promoting Engaged Student Learning, University of Georgia, Athens, GA (Apr. 2016)
5. *Applying Personal Construct Theory to Engage Undergraduates and Advance Their Critical Thinking*, CSI's International Academic Research Conference, Charleston, SC (Oct. 2015)

6. *Personal Construct Theory: An Alternative Approach to Pedagogy in the Undergraduate Psychology Curriculum*, invited address, 25th anniversary meeting of the Southeastern Conference on Teaching of Psychology, Atlanta (Mar. 2013)
7. *Teaching and Learning through Generative Analogies: An Ongoing Dialogical Process*, International Conference of the Dialogical Self, University of Georgia, Athens, GA (Oct. 2012)
8. *Technological v. Information Literacy: Technology's Role in Undergraduate Liberal-Arts Education*, Georgia Conference on Information Literacy, Coastal Georgia Center, Savannah, GA (Sept. 2012)
9. *Encouraging Holistic Learning in the College Classroom*, SOTL Commons: Conference for Scholarship of Teaching & Learning, Georgia Southern University, Statesboro, GA (Mar. 2012)
10. *Cooperative Assessment Portfolio: A Social Constructivist Approach to Assessment Instruction*, Georgia Educational Research Association, Coastal Georgia Center, Savannah, GA (Oct. 2011)
11. *The Heuristic Power of Graphic Organization*, Georgia Conference on College and University Teaching, Kennesaw State University, Kennesaw, GA (Feb. 2011)
12. *Undergraduate Psychology Assessment: Current Practice and a Future with Embedded Assessment*, Best Practices in Teaching Psychology, Atlanta (Oct. 2010)
13. *Promoting Authentic Assessment in Developmentally Appropriate Undergraduate Psychology Curricula*, invited address, APA's National Convention, San Diego (Aug. 2010)
14. *Cooperative Learning: Intersecting Cognitive and Social Constructivism*, Georgia Conference on College and University Teaching, Kennesaw State University, Kennesaw, GA (Feb. 2010)
15. *Research-Based Applications of Analogy-Enhanced Instruction*, SOTL Commons: Conference for Scholarship of Teaching & Learning, Georgia Southern University, Statesboro, GA (Mar. 2009)
16. *Constructivist Pedagogical Applications: Student-Centered Learning across the Undergraduate Curriculum*, invited address, Southeastern Conference on Teaching of Psychology, Atlanta (Feb. 2008)
17. *Heuristic Implications & Creative Applications of Analogy-Enhanced Teaching & Learning*, Conference of the International Society for Exploring Teaching and Learning, Atlanta (Oct. 2007)
18. *Pedagogical Applications of Personal Construct Theory*, Conference of the Georgia Psychological Society, Macon State College, Macon, GA (Apr. 2007)
19. *Practical Uses of Constructivist Pedagogy in the Undergraduate Curriculum*, Georgia Conference on College and University Teaching, Atlanta (Feb. 2007)
20. *Teaching, Learning, and Assessing in a Developmentally Coherent Curriculum*, invited address, APA's National Convention, New Orleans (Aug. 2006)
21. *Reflective Pedagogy through Analogy Construction*, Inaugural Conference of the Georgia Psychological Society, Valdosta State University, Valdosta, GA (Apr. 2006)
22. *Repertory Grid as a Heuristic Tool in Teaching Undergraduate Psychology*, Engaging Minds: Best Practices in Teaching Critical Thinking across the Curriculum, Atlanta (Oct. 2005)
23. *A Teacher's Guide to Self-Motivation*, keynote address, Georgia Conference on College and University Teaching, Atlanta (Feb. 2004)
24. *Teaching with Analogies Is Like...*, invited address, Southeastern Conference on Teaching of Psychology, Atlanta (Feb. 2004)
25. *Constructivist Approaches to Teaching Introductory Psychology*, Taking Off: Best Practices in Teaching Introductory Psychology, Atlanta (Sept. 2003)
26. *Students as "Architects of Knowledge" in Developmental Psychology Courses*, invited address, Southeastern Conference on Teaching of Psychology, Atlanta (Feb. 2002)
27. *Using Analogies to Teach Conceptual Applications of Course Content*, Georgia Conference on College and University Teaching, Atlanta (Feb. 2001)

***Does not include 12 presentations (2001-2017) at Gordon State's Teaching Matters Conference**

Perspectives in Learning

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Article

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The Efficacy of Concept Mapping as a Learning Tool in Life-Span Development Classes

Joseph A. Mayo

Gordon State College, joe_m@gordonstate.edu

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The Efficacy of Concept Mapping as a Learning Tool in Life-Span Development Classes

Joseph A. Mayo

Gordon State College

Abstract

The effectiveness of concept mapping on learning has been reported in research across a number of undergraduate disciplines. The purpose of the present investigation was to add to the existing literature on concept mapping in the teaching of psychology through systematic comparisons of learning in undergraduate life-span development classes. In one group, students completed concept-mapping assignments. In another group, they completed written assignments with features of relationship-identification shared with concept mapping. The combined results of quantitative and qualitative comparisons favored concept mapping over the more traditional learning assignments. Implications for future classroom research are discussed.

Over a 12-year span beginning in the late 1970s, Joseph D. Novak led a group of researchers at Cornell University who pioneered concept mapping as a graphic organizational and meta-learning strategy that assists in knowledge configuration (see Novak, 1990). He borrowed from Ausubel's (1963, 1968) meaningful theory of learning in which knowledge acquisition occurs through assimilation of new concepts into existing conceptual frameworks. With concept mapping, the learner organizes networks of concepts in a diagram resembling a hierarchical flow chart that proceeds from the most-inclusive general concept to more-specific subordinate ones (Novak, 2010). In a concept map, nodes represent concepts by means of labels containing a keyword or short phrase; links are directional lines indicating temporal or causal relationships between concepts; propositions are two or more concepts connected with descriptive words to form meaningful statements; hierarchies are row-arranged levels within the map that flow from

most abstract to increasingly more specific; and cross-links are connections between initially discrete concepts in distant parts of the map that illustrate recognition of broad linkages within a topic (Mayo, 2010; Novak & Cañas, 2008). The one- or two-way directional links between subordinate concepts, along with the descriptive connecting words, depict an understanding of semantic or ideational relationships between concepts in a learner's knowledge set (Novak, 1998).

In the context of higher education, Hay, Kinchin, and Lygo-Baker (2008) discussed ways in which concept mapping can be used to "transform abstract knowledge and understanding into concrete visual representations that are amenable to comparison and measurement" (p. 295). The efficacy of concept mapping in teaching applied concepts has a longstanding history in the research literature within the natural and physical sciences (e.g., Arnaudin, Mintzes, Dunn, & Shafer, 1984; Cilburn,

1990; Wallace, Mintzes, & Markhan, 1992), including more recent applications to college-level chemistry (Singh & Moono, 2015), biology (Bramwell-Lalor & Rainford, 2013), geology (Englebrecht, Mintzes, Brown, & Kelso, 2005), and physics (Martinez, Perez, Suero, & Pardo, 2013). Dating back to the early 1990s, undergraduate nursing is another academic discipline in which the benefits of concept mapping have been widely reported (see Daley, Morgan, & Black, 2016, for a historical literature review). Although to a comparatively lesser degree, the pedagogical utility of concept mapping has also been shown within undergraduate classes in other academic disciplines, including accounting (Simon, 2007), management (Gray, 2007), technology (Alhomaidan, 2015), and teacher education (Buldu & Buldu, 2010).

In my own teaching discipline, researchers have explored the use of concept mapping in the undergraduate psychology curriculum. However, the incidence of this research has been relatively sparse. To my best knowledge, there have been no empirical or anecdotal reports in the research literature for more than a decade. In the framework of teaching introductory psychology, Jacobs-Lawson and Hershey (2002) compared students' concept maps at the beginning (pretest) and end (posttest) of the semester, concluding that concept mapping is effective at assessing students' knowledge. Similarly, in examining concept mapping in a sophomore-level personality theories course, Anthis (2005) found a significant increase in the number of quantitative items in students' concept maps from pretest to posttest. More recently, Carnot and Stewart (2006) used concept mapping in both a sophomore-level cognitive psychology class (as advance organizers for class lectures and discussions) and a senior-level culture and psychology

class (as graphic organizers for each textbook-based chapter). Although they did not implement formal measurement of students' responses to concept mapping, they did find overall indications that students responded favorably when maps were targeted for a future assignment or possessed applicability to other learning scenarios.

Purpose

In the early 2000s, I had co-conducted a collaborative pilot investigation that examined concept mapping of the human nervous system as a learning assignment in multiple sections of both introductory psychology and biology classes. Visual inspection of students' work from this cross-disciplinary study showed that concept mapping provided students in all class sections with an organizational platform from which to comprehend the basic structures and functions of the human nervous system (Mayo & Salata, 2002). Following my involvement in this investigation, I have applied concept mapping more extensively throughout my own introductory psychology and several other undergraduate psychology classes. Although I have continued to observe anecdotal confirmation of the teaching and learning benefits associated with concept mapping, I have become increasingly interested in determining whether I might uncover empirical evidence in my own classes to support my more informal classroom observations. I designed the present investigation to satiate this growing personal interest, and at the same time, to add to the existing research literature on concept mapping within the teaching of psychology. More specifically, in the current study I will undertake a systematic comparison between a learning condition where one group of undergraduate life-span development students completes concept-mapping

assignments and another condition in which a different group of these students completes more traditional written assignments with elements of relationship-identification shared with concept mapping. Consistent with previous research findings on the favorable impact of concept mapping on learning, I predict that those students in the concept-mapping learning condition will demonstrate greater learning gains than those in the comparison condition.

Methods

Participants

Participants were 126 college freshmen and sophomores (79 women and 47 men) enrolled in one of four sections of a life-span developmental psychology course. Their ages ranged from 17 to 56 years ($M = 25.84$).

Design

As part of an independent two-group quasi-experimental design, I compared student performance in two course sections receiving concept-mapping assignments (Mapping condition) with similar performance in a Control condition consisting of two other course sections in which I gave no such assignments. Over two consecutive semesters, I randomly assigned intact classes to either the Mapping ($n = 67$) or Control ($n = 59$) condition. There were no appreciable differences between conditions on the basis of age, gender, GPA, and SAT and/or ACT scores. Except for the presence or absence of the concept-mapping assignments, I held the course content, testing format, and other pertinent instructional variables constant between conditions, including the fact that I served as instructor for all class sections.

Procedure

In both the Mapping and the Control conditions, I chose the same 10 developmental theorists as the focal points of 5 total hours of classroom instruction. I selected these theorists as leading representatives of these major developmental perspectives: ethological (Konrad Lorenz); contextual (Urie Bronfenbrenner); psychodynamic (Sigmund Freud, Erik Erikson); learning (B. F. Skinner, Albert Bandura); humanistic (Abraham Maslow); cognitive (Jean Piaget, Lawrence Kohlberg); and sociocultural (Lev Vygotsky).

In the Mapping condition, I conducted 30 minutes of preliminary training on how to properly construct a concept map based on a pre-existing, concept-mapping training module (Mayo, 2010). Following this training and the aforementioned classroom instruction on the targeted developmental theorists, I asked students to generate concept maps to portray their comprehension of the work of each theorist. Completed maps were due in class on an exam day one week after completion of the classroom instruction. In grading the maps, I followed an established grading scheme (Mayo, 2010) in which I assigned specified point values to accurate nodes, links, hierarchies, and cross-links.

Students individually completed the concept maps—each worth 1% of the final course grade—outside of class as hand-drawn assignments. I elected for a hand-drawn over a computer-generated mode of completion so as to avoid the need for additional student training on constructing concept maps electronically. As an illustrative example, Figure 1 shows a student-generated concept map for Bronfenbrenner's (1979) bioecological

(contextual) theory. Although this map was originally hand-drawn, for optimum presentation clarity I have re-constructed it electronically through CmapTools (Florida Institute for Human and Machine Cognition, 2018), which is a cost-free, downloadable, online software toolkit that allows users to construct, navigate, share, and critique concept maps.

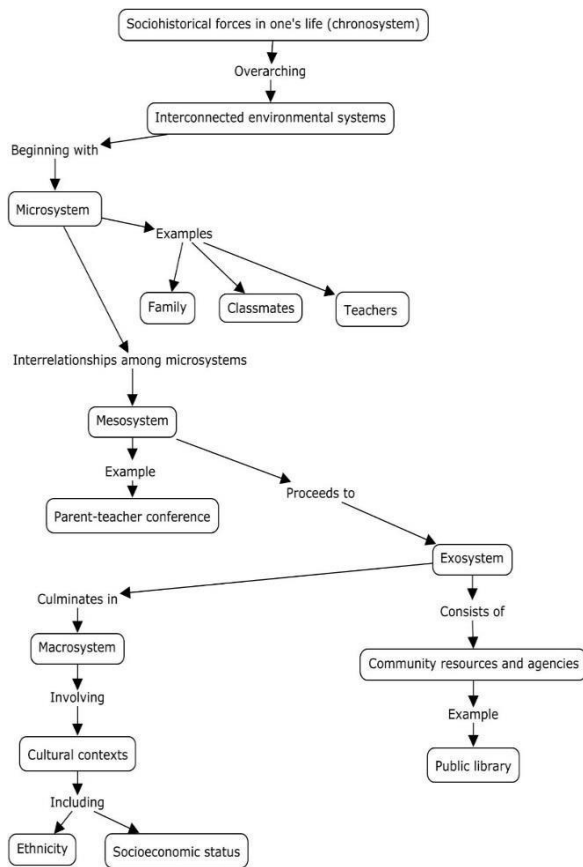


Figure 1. Computer-Generated Version of an Originally Hand-drawn, Student-Composed Concept Map of Bronfenbrenner's Bioecological Theory

In order to establish equivalency between conditions, in place of the concept-mapping assignments, I assigned students in the Control condition written assignments pertaining to the work of the same developmental theorists addressed in the

Mapping condition. At the root of concept mapping is the depiction of conceptual connections. Consequently, the written assignments in the Control condition were aimed at addressing conceptual relationships between core features of the work of each selected theorist. Each assignment consisted of a maximum 350-word synopsis associated with each chosen theorist. Parallel to the procedures followed in the Mapping condition, students in the Control condition individually completed the synopses outside of class after receiving an equal amount of classroom instruction on the work of the developmental theorists in question. Moreover, each synopsis was worth 1% of the final course grade, with all synopses due in class on an exam day 1 week following classroom instruction.

Results and Discussion

As the dependent measure for use in comparative statistical testing, I used academic performance on an exam that representatively canvassed the work of the targeted developmental theorists. In both conditions, this exam was administered one week after completion of classroom instruction on the developmental theorists. In order to minimize the possibility of experimenter effects in composing and grading this exam, I selected 50 multiple-choice questions from conceptually based, test-bank items. In the dual interest of test security and alternate-form test reliability, I matched questions on content and level of difficulty in the process of selecting items for random inclusion on four different-but-equivalent exam versions (one for each of the four participating class sections). The results of an independent-groups *t*-test showed that students exposed to concept mapping ($M = 83.16$, $SD = 8.61$) significantly outperformed those students who did not receive this

Table 1

Students' Numerical Ratings of the Assignments in the Mapping and Control Conditions

Item	Control		Mapping	
	M	SD	M	SD
1. Organizing course content	3.04	0.77	4.62	0.53
2. Improving overall conceptual understanding	2.76	0.93	4.46	0.81
3. Clarifying conceptual relationships	2.89	1.01	4.33	0.65
4. Stimulating engagement in learning	2.93	0.68	4.01	0.96

educational intervention ($M = 78.94$, $SD = 10.29$), $t(124) = 2.51$, $p < .01$.

I used a brief questionnaire to assess students' perceptions of completing respective assignments in the Mapping and Control conditions. Within this survey instrument, I linked each of the following four items to a 5-point Likert-type scale with anchors at 1 (*not helpful*) and 5 (*very helpful*): (1) organizing course content; (2) improving overall conceptual understanding; (3) clarifying conceptual relationships; and (4) stimulating engagement in learning. Across all attitudinal measures, students in the Mapping condition rated far more positively the experience of completing the concept-mapping assignments than students in the Control condition rated the synopses assignments. Students' numerical ratings appear in Table 1.

At the conclusion of the survey, I invited students in both conditions to write open-ended comments about their corresponding assignments. With nearly 75% of participants in the Mapping condition responding, slightly over half voiced that the visual nature of concept maps helped them to recognize and better understand the *big picture* of interrelationships among related ideas. In contrast, only about 20% of participants in the Control condition offered

comments about the synopses assignments, with the vast majority being critical insofar as conceptual comprehension and interconnections are concerned.

Viewed as a whole, the present findings suggest that concept mapping is an effective student learning tool in the context of teaching life-span developmental psychology. As predicted, the results of comparative statistical testing lend empirical support to the conclusion that concept mapping improves learning when compared to a more traditional learning task. In addition, student attitudinal data indicated that concept mapping not only possesses organizational value in learning but also serves as a graphic organizer that both encourages and facilitates students' visual understanding of concepts and their component interrelationships. These results corroborate previously discussed findings on the successful use of concept mapping as a meta-learning technique in other undergraduate classes in psychology (Anthis, 2005; Carnot & Stewart, 2006; Jacobs-Lawson & Hershey, 2002) and other academic disciplines (e.g., Alhomaidan, 2015; Buldu & Buldu, 2010; Martinez et al., 2013).

In the present investigation, students in the Mapping condition created their maps

individually. Future research on concept mapping might examine whether learning differences arise between conditions where students create concepts maps on their own and those conditions in which they rely on group processes to construct the maps. Additionally, subsequent research might focus on systematic comparisons between concept mapping and other types of graphic organizers (e.g., Venn diagrams, analogy organizers, knowledge grids) to determine if learning differences are found within these comparisons.

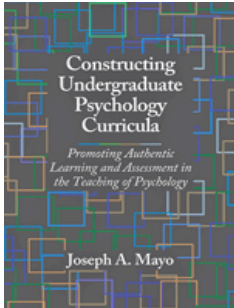
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Appendix B: Peer Reviews of SOTL Book

Constructing Undergraduate Psychology Curricula: Promoting Authentic Learning and Assessment in the Teaching of Psychology



Mayo is an accomplished psychology professor and an award-winning researcher. This book demonstrates his passion for blending in-depth research with practical classroom applications that provide the reader with a framework to increase student learning outcomes throughout the psychology curricula. This book belongs in the professional library of all psychology instructors who are committed to student learning and assessment.

—Mindy McCannon, Ed.D., Vice President of Academic Affairs, Georgia Northwestern Technical College, Rock Spring, GA

Mayo is well-known for dozens of articles on the scholarship of teaching and learning, and here he has managed to provide a comprehensive overview of current teaching and learning issues within the history of teaching in his discipline. What distinguishes this work from so many pedagogical works is that Mayo has grounded his discussion in a thorough review of the literature and in his own pioneering studies of the assessment of learning associated with the strategies he suggests. Mayo presents complex theoretical discussions in a succinct manner and links them to specific examples of concrete practice. This book is one of the finest examples available of the scholarship of teaching and learning, and it would be useful not only for teachers of psychology but also for all professionals looking for a model of excellent research techniques in this area.

—Deborah Vess, Ph.D., Special Assistant to the Provost and Professor of History, Georgia College and State University, Milledgeville, GA

This book provides a wealth of useful and practical strategies for implementing APA's Guidelines for the Undergraduate Major in Psychology that will appeal to psychology faculty who are eager but uncertain how to redesign their courses and curricula. All of the strategies presented are solidly grounded in constructivist theory and are sensitive to developmental challenges students face as they progress from introductory to advanced courses in the major.

—Thomas P. Pusateri, Ph.D., Associate Director for the Scholarship of Teaching and Learning, Center for Excellence in Teaching and Learning, Kennesaw State University, Kennesaw, GA

Appendix C: Faculty Colleague's Letter of Support

November 20, 2018

Dear Members of the SOTL Awards Committee,

It is with great honor that I write this letter on behalf of Dr. Joseph Mayo. I have only known Dr. Mayo for a few months, but I have admired his work for the past two decades. I attended Gordon State College in the late 1990s and was aware of his work at that time. He has been known to be one of the best psychology professors at Gordon State College in addition to being one of the most prolific publishers of classroom-based research. I am honored to have the opportunity to learn from him.

Instead of summarizing Dr. Mayo's research agenda, which speaks for itself, I would rather explain how Dr. Mayo has served as an unofficial mentor for me during this semester.

My first interaction with Dr. Mayo was by email during the summer. I was assigned to teach developmental psychology, which is one of his specialties. With a quick email, Dr. Mayo shared his syllabus, several assignments, and recent journal articles to support the efficacy of those assignments. As a new professor, his openness to building a collegial relationship was extremely encouraging. After this first interaction, I found myself sitting in his office for advice about additional experiential teaching activities. His guidance allowed me to embrace a new course with excitement. In addition to sharing his activities, I also selected his textbook for the course. My students have found the text to be easy to read and applicable to daily life.

Our next extended interaction was regarding undergraduate research. Knowing that Dr. Mayo was the local research expert, I emailed to ask for some advice on a project I was considering. A few days later we met to discuss the idea. At that meeting, he provided me with preliminary research, related books, and more journal articles. We have talked several times as I have implemented the research project this semester. Dr. Mayo also provided formative feedback to several of my students who were preparing to present at the Georgia Undergraduate Research Conference. Without his guidance and support, I do not believe I would have had the courage to undertake research my first semester.

From my perspective, Dr. Mayo is an excellent choice for the Scholarship of Teaching and Learning Award. Thank you for your time and consideration.

Sincerely,



Jessica Traylor, Ed.D.
Assistant Professor of Psychology
Gordon State College
(678) 359-5060
Jtraylor1@gordonstate.edu