



The Mind Map as a Tool for Critical Thinking

Learning is a fascinating process. Throughout our lives, and in many ways, we learn and master various combinations of facts, concepts, and principles. A great deal of learning occurs in a linear fashion (e.g., formulas, computations, sequential list of facts, rules of grammar). A graphical depiction of this type of learning could be represented with outlines, flow charts, and tables, illustrating the one-dimensional relationship between pairs of informational variables. One of the aims of higher education, however, is to promote learning that requires deeper, more critical, thought, including the ability to analyze relationships and make multiple connections between facts and concepts. A *mind map* (a.k.a., concept map, cognitive map) is

a tool that organizes words, thoughts, ideas, tasks, activities, and more in the form of a diagram. ... start[ing] with a key or main idea in the center with subtopics [arranged] radially around the main idea. The subtopics group and cluster similar ideas, and they branch out to lower-level topics, guiding you to wherever your thought processes lead you. (Arthur, 2012, p. 9)

The origination of the mind map has been traced back to the Phoenician philosopher Porphyry of Tyros who created graphic depictions of the Aristotle's *Organon*. The modern rendition of the mind map, however, is attributed to author and educational consultant Tony Buzan (1974), who compared the mind map with the map of a city:

The centre of your Mind Map is like the centre of the city. It represents your most important idea. The main roads leading from the centre represent the main thoughts in your thinking process; the secondary roads represent your secondary thoughts, and so on. Special images or shapes can represent sites of interest or particularly interesting ideas. (Buzan, 2012, p. 6).

Tsinakos and Balafoutis (2009), summarizing current research on mind maps, suggested the following process for map creation:

- Begin with a blank (preferably large) sheet of a paper.
- Place the main topic of the map in the center of the page. The topic should be depicted in a large, colorful manner and accompanied with a graphic design or picture.
- Draw radiating, curved lines (called branches) from the main topic to represent key ideas. Branches should be drawn in bright colors; identified with one-word labels; and, if the content is sequential in some manner, numbered in a clockwise manner.
- Add sub-branches, as necessary, to clarify and define the topic.
- Use arrows, geometric figures, punctuation marks, symbols, and pictures to prioritize the importance of the content.

The final product provides a colorful, well-organized, and memorable way to capture and display course content.

“As a single footstep will not make a path on the earth, so a single thought will not make a pathway in the mind. To make a deep physical path, we walk again and again. To make a deep mental path, we must think over and over the kind of thoughts we wish to dominate our lives.”

—Henry David Thoreau,
author, poet,
philosopher

Using Mind Maps as Teaching Tools

There are several ways mind maps can be integrated into the process of teaching and learning in first-year courses. Three in- and out-of-class strategies are described below.

Mind Maps as an In-Class Processing Activity

For effective pedagogy, it is helpful to provide students with intentional strategies to summarize and synthesize content presented in textbooks, classroom lectures, or demonstrations. For example, within small groups, students could be tasked to create mind maps for a key topic or concept under investigation. These could be shared in class or posted in the discussion forum housed in the campus learning management system (LMS). A collection of mind maps can also assist students in preparing for examinations.

Mind Maps as a Prewriting Activity

One of the skills that can best prepare students during their college journey, as well as after graduation, is the ability to communicate in writing. Good writing is preceded by good planning. Using a mind map helps students organize their thoughts and conceptualize the components of written assignments. After creating the initial map drafts, students can either participate in a peer review process or submit their maps to the instructor for suggestions. Experiencing the benefits of good planning can foster the habit of using mind mapping as part of the writing process.

Using Technology to Create and Share Mind Maps

With the growing popularity of mind maps as a strategy for learning, free online tools have been created to assist in this process. One such website is Coggle (<https://www.coggle.it/>) where students work from a blank white screen using a palette of colors and design tools that can turn anyone into an expert mind mapper in a matter of minutes.

Online tools help students create their mind maps outside of class. Results can easily be posted to LMS discussion forums, and the LMS format provides a convenient way for students to review and comment on the work of their classmates.

Summary

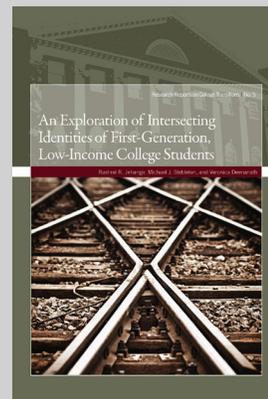
As an example of the mind map process, Figure 1 on page 3 depicts some of the key theories of teaching in higher education. Various aspects of the presented theories are color coded to illustrate the level at which they overlap and complement one another. The creation of this mind map might start with a student conversation about theories that will be included in the map, followed by a discussion of the ways the components intersect (resulting in the color coding process). Finally, the resulting mind map could be shared with other groups of students for review and suggestions. The exercise fosters critical thinking and produces a thoroughly vetted product created through a process of dialogue and exploration.

Help your students synthesize their learning: Create mind maps!

REFERENCES

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RESOURCES SUPPORTING UNDERSERVED STUDENTS



An Exploration of Intersecting Identities of First-Generation, Low-Income College Students

Research Reports on College Transitions No. 5

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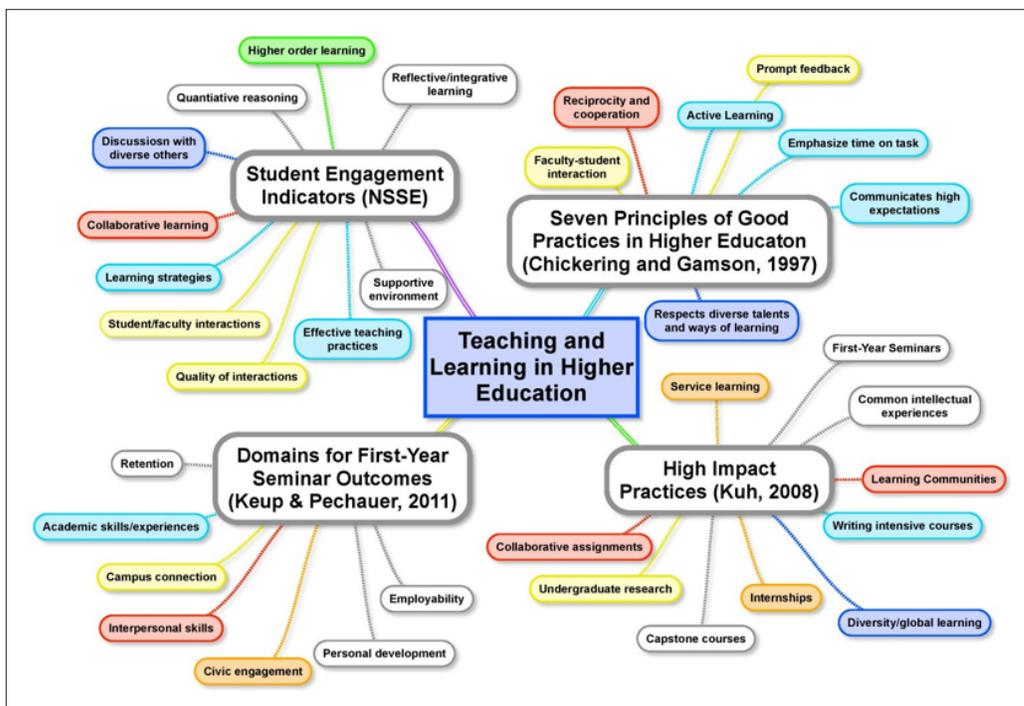
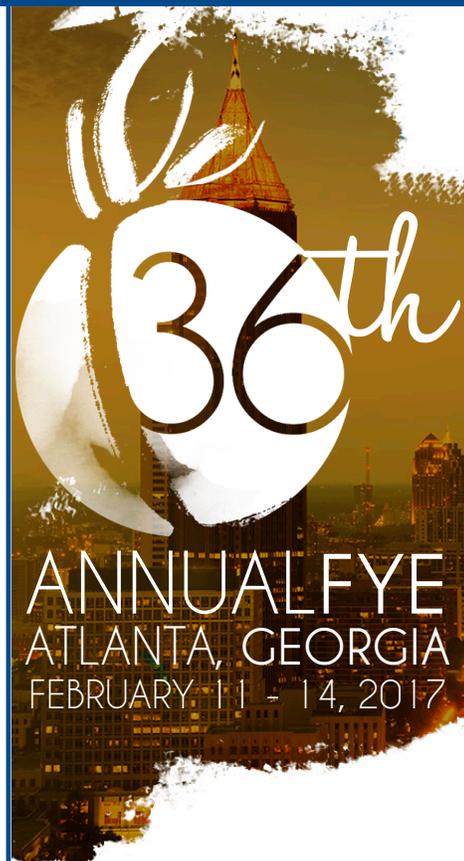


Figure 1: A sample mind map.



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What's Happening at The National Resource Center

Conferences and Continuing Education

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Institute on First-Generation College Students

July 29-31, 2016

Columbia, South Carolina

The National Resource Center invites those interested in programs and initiatives for first-generation students to join us for the Institute on First-Generation College Students. Institute faculty will build a framework for examining trends and practices connected to building a comprehensive and intentional approach to ensure the success of first-generation students. Individual sessions are designed to build on one another so that participants leave with a personalized action plan for use on their home campuses. Modeling the active pedagogies we advocate for our classrooms, the Institute faculty employ group work, problem solving, case studies, discussion, and other active strategies to engage participants in learning. We at the National Resource Center firmly believe that participants will find this Institute to be a rich and rewarding experience, whether your institution is already involved in initiatives for first-generation students or currently designing and creating new initiatives.

23rd National Conference on Students in Transition

October 15-17, 2016

New Orleans, Louisiana

Proposal Deadline: July 15, 2016 at 5:00 pm

The National Resource Center invites online proposal submissions. Concurrent session, round-table discussion, poster session, and exhibitor presentation proposals are requested on topics addressing a range of student transitions within and across higher education sectors. For more information on session types, submitting an online proposal, and selection criteria regarding acceptance, visit <http://sc.edu/fye/sit/proposal.html> or contact Amanda Jackson at FYECONF@mailbox.sc.edu or (803) 576-6328.

Online Courses

The National Resource Center offers online courses on topics of interest in higher education. The courses provide participants the same content and opportunities for interaction with peers and the instructor as traditional (i.e., classroom-based) learning environments while taking advantage of pedagogy and teaching techniques that are not possible or common in those settings. The courses use tools such as e-mail, threaded discussions or forums, listservs, and blogs. Enrollment is limited to 25 participants, and attendees will earn 1.5 continuing education units for each course. Visit <http://www.sc.edu/fye/oc> for more information.

Online Courses Offerings

Who Are Our Veteran Students and Are We Veteran Friendly?

May 30-June 24, 2016

Facilitated by David DiRamio, Associate Professor, Auburn University

In this online course, we will examine the phenomenon of the veteran student in college by integrating best practices, findings from the research literature, and empirically established theories. The course is designed to inform and engage those who provide campus programs and services for veteran students, as well as others in the higher education and student affairs community.



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Publications

We invite you to contribute to the conversation...

Submissions are invited for *E-Source for College Transitions*. Published three times a year, *E-Source* is an electronic newsletter providing practical strategies for student learning and success. Articles on a variety of topics related to student transitions are welcome, especially those focusing on

- teaching strategies in the first college year;
- strategies for addressing the sophomore, senior, and transfer transition;
- proven institutional initiatives;
- strategies for assessing student learning, experiences, programs, and courses;
- exploration of transition issues related to campus type; and
- programs addressing the needs of special student populations.

Complete submission guidelines and additional information about *E-Source* can be found online at www.sc.edu/fye/esource. You may also contact the editor, Dr. Christina Hardin via e-mail at ESOURCE@mailbox.sc.edu if you have questions about submission guidelines or the review process. Submissions are accepted at any time; however, to be considered for the fall 2016 issue, submissions must be received by June 15, 2016.

National Resource Center Exhibits and Presentations

Like many of you, the staff of the National Resource Center for The First-Year Experience and Students in Transition is actively involved in the conference circuit. We are pleased to share the following upcoming opportunities to hear about the results of research studies conducted by the Center, learn about best practices, and meet National Resource Center staff members.

Global Perspectives on the First-Year Experience. Keynote panelist, Tracy L. Skipper, National Resource Center Assistant Director for Publications, at the SANRC FYE Conference; May 25-27, 2016; Johannesburg, South Africa.

Using a Developmental Approach for First-Year Assessment: Meeting Students Where They Are. Plenary session by Jennifer R. Keup, National Resource Center Director, at the ACPA Student Affairs Assessment Institute; June 22, 2016; Sheraton Baltimore North Hotel; Baltimore, Maryland.

Building Blocks for an Effective First-Year Assessment Plan. Presentation by Jennifer R. Keup, National Resource Center Director, at the ACPA Student Affairs Assessment Institute; June 23, 2016; Sheraton Baltimore North Hotel; Baltimore, Maryland.

Creating Learning Objectives and Outcomes for First-Year Programs. Presentation by Dallin George Young, National Resource Center Assistant Director for Research, Grants, and Assessment, at the ACPA Student Affairs Assessment Institute; June 23, 2016; Sheraton Baltimore North Hotel; Baltimore, Maryland.

Quantitative Analysis. Presentation by Dallin George Young, National Resource Center Assistant Director for Research, Grants, and Assessment, at the ACPA Student Affairs Assessment Institute; June 23, 2016; Sheraton Baltimore North Hotel; Baltimore, Maryland.

E-Source Submission Guidelines

For complete guidelines and issue dates, see tech.sa.sc.edu/fye/esource/web/submission.php.

Audience: *E-Source* readers include academic and student affairs administrators and faculty from a variety of fields interested in student transitions. All types of institutions are represented in the readership.

Style: Articles, tables, figures, and references should adhere to APA (American Psychological Association) style.

E-Source does not publish endorsements of products for sale.

Format: Submissions should be sent via e-mail as a Microsoft Word attachment.

Length: Original feature-length articles should be 750-1,200 words. Annotations of new resources should be no more than 500 words. The editor reserves the right to edit submissions for length. Photographs are welcome.

Please address all questions and submissions to:

E-Source Editor
National Resource Center for The First-Year Experience & Students in Transition
University of South Carolina
1728 College Street
Columbia, SC 29208
E-mail: esource@mailbox.sc.edu

Sign up for



Looking for new teaching strategies or fresh ideas for first-year seminars? *E-Source*, the National Resource Center's online newsletter for college transitions, offers a wealth of information. *E-Source* also is accepting submissions for future issues. To view the archives, review submission guidelines, and receive content alerts for new issues, please visit:

www.sc.edu/fye/esource

Reporting Results and Choosing the Loop: Building Political Capital With First-Year Stakeholders. Presentation by Dallin George Young, National Resource Center Assistant Director for Research, Grants, and Assessment, and Jennifer R. Keup, National Resource Center Director, at the ACPA Student Affairs Assessment Institute; June 24, 2016; Sheraton Baltimore North Hotel; Baltimore, Maryland.

Research

The National Resource Center is currently conducting the third administration of the National Survey of Senior Capstone Experiences. Invitations to participate are being sent to chief academic, executive, and student affairs officers on campuses between March and May 2016. If you coordinate a program-based senior-year experience, culminating experience, or capstone program or course on your campus, please reach out to encourage participation and to ensure your endeavors are included in this national data collection effort.

Call for Proposals

2016-2017 Paul P. Fidler Research Grant

The National Resource Center invites applications for the 2016-2017 Paul P. Fidler Research Grant, which is designed to encourage the development and dissemination of knowledge to improve the experiences of college students in transition. With an award package that includes a stipend, travel to two national conferences, a presentation at a national conference, and priority consideration for publication, the Paul P. Fidler Research Grant supports and promotes research with the potential to have a national impact on student success. The Center invites applicants to submit proposals for research projects addressing a variety of topics, which may include underrepresented student populations, community colleges, advising, transfer and articulation, career development, and other issues related to college student transitions. Grant submission officially opens on April 1, 2016. The application form may be accessed at www.sc.edu/fye/fidler and must be submitted electronically using the online form by 11:59 PM Eastern Time, July 1, 2016.

Awards and Recognition



AOFYE–National Resource Center Grant Recipient

The National Resource Center for The First-Year Experience, in partnership with the ACPA Commission for Admissions, Orientation, and First-Year Experience (AOFYE), is pleased to name Amber Manning–Ouellette as the recipient of the 2016 AOFYE–National Resource Center Research Grant. Her study, entitled “A WISE Approach: How Service–Learning Affects First-Year STEM Women,” examines the experiences of STEM women participating in a service-learning project during a first-year leadership development course comprising student leaders, peer mentors, and women in science and engineering (WISE) students at a large, public university in the Midwest. The research provides insight into how WISE students understand and benefit from a service-learning experience and how it influences their perceptions of leadership and the university in the first-year of college. Through the campus leadership course, WISE students found an increased sense of community, connection to the university, and identity as a leader on the campus. These important developments are associated with student retention of underrepresented populations at the university. The grant carries a \$500 award, and Manning–Ouellette was recognized at the AOFYE general meeting during the ACPA annual convention in Montreal, Canada.

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The Toolbox

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The Toolbox is an online professional development newsletter offering innovative, learner-centered strategies for empowering college students to achieve greater success. The newsletter is published six times a year by the National Resource Center for The First-Year Experience and Students in Transition at the University of South Carolina, Columbia, South Carolina.

The online subscription is free. To register for newsletter alerts and access back issues, please visit www.sc.edu/fye/toolbox.

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