Strategies for Advising Undergraduate Research

Faith Agostinone-Wilson, Joan Fee, Christina Bruhn, Meredith Harvey, Christopher Wells
Overview

- AU/GWC faculty group book project
- Lack of handbooks for faculty and advisors who supervise undergraduates conducting research
- Concept of book:
  - Provide background information about demographics and characteristics of undergraduates
  - Present strategies for engagement with writing for research purposes
  - Discuss different contexts of undergraduate research with real-world examples
Today’s Undergraduate Student: Implications for Teaching Research
Faith Agostinone-Wilson
Background

- Undergraduate students represent some of the most diverse demographic characteristics contained within one group.
- According to Kazis, et.al (2007), the definition of “non-traditional student” cannot be determined by age alone and includes the following risk characteristics in any combination: not financially dependent on parents, having children or other dependents, being a single parent, not possessing a high school diploma, attending school part time, working full time, and delaying postsecondary enrollment after one year of graduating from high school.
- Only 27% of undergraduates have none of these characteristics and can be considered “traditional students”.
- Median age is rising to 29 (Hersch & Merrow, 2005)
Key Contexts

- **Political**
  - Privatization
  - Adjunctification of faculty
  - Corporate-funded research
  - Diversity and backlash
  - Liberals Arts and foundations decline
  - Ascent of Utilitarianism

- **Economic**
  - Reduction in state sources of funding
  - Subsequent tuition hikes
  - Changes in financial aid policies
  - Realities of working adults

- **Social/Academic**
  - Degree persistence
  - Transfer and articulation agreements
  - Campus climate/The commuter student
  - Pedagogical considerations
Implications for Research

- Research projects need to be designed to tap into the life experiences of the non-traditional undergraduate student while providing writing and library database search skills guidance for those who have been away from formal education for a while.
- Likewise, the 18-22 year old undergraduate fresh out of high school may have to have assistance with thematic analysis and making deeper connections with the data.
- Students need to learn the importance of research ethics and the role of the Institutional Review Board. The very process of submitting proposals for review often increases the quality of student writing.
Implications for Research

- Because of the budgetary constraints facing postsecondary institutions, faculty should expect to do a hefty amount of do-it-yourself (DIY) curriculum planning for research experiences, not relying as much on external resources, funding field trips, securing for-a-fee guest speakers, etc.

- That means possibly collaborating with faculty from other departments to increase the power of a research project across interdisciplinary lines.

- These partnerships should be flexible enough to accommodate the working schedules of adult students and partners should be open to a diverse range of undergraduates.
Implications for Research

- Undergraduate students may not be as responsive at first to more creative, independent, open-ended types of learning, such as are involved with research projects or more often seen in the graduate classroom.

- Scaffolding of experiences from more heavily monitored/direct instruction about elements of research to guided practice, to independent work is effective for both younger and older undergraduates.

- Constant and informative feedback while in class is also essential because designing and conducting research is not an experience most undergraduates have had before.
Narrative Inquiry/Research
Joan Fee
Narrative Inquiry/Research

Qualitative Research
Either a
Phenomenon being studied (e.g., narrative of a college biology class)
Or
Method of conducting research (collecting and analyzing individual life stories)

(Creswell, 2013)

Here we discuss the method.
**Definition**

“Narrative is understood as a spoken or written text giving an account of an event/action or series of events/actions, chronologically connected” (Czarniawska, 2004, p. 17)

“Stories told in the first person about particular events by the narrator who experience it him/herself” (Labov as cited in Trahar, 2011, p. 23)
For Undergraduates

Begin with Writing own Event (500 words) to Share with a Partner

Then Practice

- Learning Research Ethics
- Developing Questions
- Deep Listening
- Interviewing/Recording/Transcribing
- Taking Field Notes
- Reflecting and Analyzing
- Engaging with Complexity
- Writing
Possible Topics & Analysis Foci

**Career-Related Topics**
- Internship/Apprenticeship/Mentorship Stories
- Best/Worst Day on the Job
- Job Success Stories
- Challenging Job-Related Situations
- Stories of a Job-Related Project
- Teamwork/Collegial Stories

**Analysis Dimensions**
- Time (Past, Present, Future)
- Interaction (Personal and Social)
- Place (Physical Boundaries)
  (Clandinin and Connelly, 2000)
Measuring the Impact of Service Learning Projects
Christopher Wells
Measuring the Impact of Service Learning Projects

- Many undergraduate courses now incorporate a service learning project that is intended to have a social, environmental, or economic impact.
- A review of the literature shows that students are often asked to write about what they did (tasks) for learning assessment, but not about what they accomplished through the project.
- Writing about project impacts helps students appreciate the need for their service.
- Finding appropriate measures of impact is essential (Bornstein & Davis, 2010; Vasan & Przybylo, 2013).
Social – Ice Age Trail

- Measures of impact
  - Number of hikers
  - Health and wellness benefits accrued by hikers
  - Reduced impact on other natural land
  - Works of art inspired by time spent hiking in nature
Environmental – Marine Debris

- Measures of impact
  - Amount and type of debris collected
  - Number and types of wildlife that benefit from a cleaner environment
  - Number of boaters and swimmers who benefit from fewer accidents caused by debris
Economic – Art Gallery

• Measures of impact
  ◦ Number of artists whose work has sold
  ◦ Revenue generated through art sales
  ◦ Revenue brought to neighboring businesses by having the gallery in the neighborhood
Primary Research with First Year Undergrads: Goals & Strategy
Meredith Harvey
Primary Research with First Year Undergrads: Goals & Strategy

• Explicit Goal: To teach students about research writing as a mode, through modeling.

• Strategies: Progressive writing assignments & Flipped classroom model
Research: Pre-Writing & Literature Review

- Database Usage
- Primary research articles & Journal Club
- Topics Selection: Bruce Ballenger’s *Curious Researcher*
- Journal Club => Annotated Bibliography
- Annotated Bibliography => Literature Review
Ethics, Proposals & Research

- Discuss Research Questions
  - Bruce Ballenger’s *Curious Researcher*
  - How they could find the answer (mode)

- Ethics
  - Henrietta Lacks
  - IRB=>Research Proposal

- Research
  - Instructor Facilitated
  - Data Collection
**Student Results & Analysis**

- **Results**
  - Oral Presentation (Informal) => Results
  - SPSS, graphics, and when to put results & discussion together

- **Analysis**
  - Discuss significance of findings
  - Ask about problems (forms limitations)
  - Ask about what they learned and what they could learn with more time/money/access? (forms future studies)
Student Feedback

- “I do think that breaking this final paper in to different assignments helped keep the paper organized and made it easier to understand the topic we are writing about. Also it made it easier to put together.”

- “I think the time working and breaking up the steps on the paper in class did help me complete the tasks effectively because I got to do the paper in steps and not all at once… And I got to specifically focus on each step making sure I did each step right.”

- “I was able to take as much time as I wanted to write the different assignments and i felt in no way pressed for time. Overall, I'd say that is probably the best way to do a large assignment like that.”
Teaching Research to Undergraduates in the Social Sciences
Christina Bruhn
• Why bother with this topic?
  ◦ No systematic reviews have been published
  ◦ A book has been published, but it does not address the evidence base
  ◦ Many studies have been done, yet their research designs tend to be weak (very weak), and the evidence has not yet been aggregated

• So, what’s the problem?
  ◦ Students don’t understand why they need to do research (Shannon, Kim, & Robinson, 2012)
  ◦ Students are likely to perceive research courses as anxiety-producing (Green, Bretzin, Leininger, & Stauffer, 2001; Howard et al., 2003; Kelly & Bronstein, 2003)
• Problems, cont.
  ◦ Students have “unfavorable attitudes” (Macheski et al., 2008) that may become more unfavorable after taking a class (Manning et al., 2006; Sizemore & Lewandowski, 2009) (from Sociology); of note, however, is conflicting research suggesting considerable variation in students’ attitudes toward research (Secret, Ford, & Rompf, 2003).
  ◦ Students do not feel prepared to engage in post-graduate work and would rather focus on practice than research (Lemieux & Allen, 2007)
• What’s the result?
  ◦ Students do not retain the research class material (Witkin, Edleson, & Lindsey, 1980)
  ◦ Students do not value the importance of scientific evidence as related to their practice (Bolen, 2005) and do not have the skills to apply research findings (Howard, McMillen, & Pollio, 2003; Rubin & Parrish, 2007)
  ◦ Candidates don’t know how to find or access research literature (Brown et al., 2003)
  ◦ Students do not use research material once they graduate and enter the professional world – “Practitioners and students… rely on their personal strategies and common sense” (Parker, 2004). Practitioners may think that research is academic and not a pursuit that takes place in the working world (Anderson, 2002)
What are institutional barriers to effective teaching of research?

- The content can be difficult to cover in a semester, and the curriculum may not afford a two-semester course (Shannon, Kim, & Robinson, 2012)
- Lack of emphasis of research within the curriculum has the effect of limiting academics’ confidence to teach research, thus reducing the future pool of researchers (Orme & Powell, 2007)
- Demanding academic schedules may preclude research activity on the part of academics. Absence of active research involvement may impede their ability to incorporate research content in classroom teaching and discussions (Orme & Powell, 2007)
• What doesn’t work in teaching of research?
  ◦ “A significant amount of research teaching was non-experiential and in traditional formats such as didactic teaching. This is in contrast with the literature on research teaching that highlights the use of experiential learning” (MacIntyre & Paul, 2013)
  ◦ Andragogy (adult learning strategies) emphasizing presentation by problem rather than by subject and discussion over lecture did not produce better outcomes with regard to knowledge and research appreciation (Nasuti, York, & Henley, 2003)
  ◦ Team-based Learning was not more effective than traditional pedagogies in increasing student intent to incorporate research into practice (Macke & Tapp, 2012)

• What has been claimed as effective?
  ◦ Active learning using a variety of approaches
    • Involve students in faculty research (Berger, 2002)
• What does work, cont.
  ◦ Active learning, cont.
    • Conduct secondary analyses of existing data sets (Wells, 2006)
    • Conduct research in the field/practicum setting (Moore & Avant, 2008)
    • Teach research and practice in the same course (Berger, 2002)
    • Evaluate evidence base for an intervention of interest (Auslander, 2012)
    • Review specific articles in small group settings (Holmes, 2008)
  ◦ Problem Based Learning (Inquiry Based Learning)
    • IBL was associated with slightly lower knowledge gains but more retention of knowledge (Dochy et al., 2003)
  ◦ Service Learning
    • Conducting research in community-based settings to provide benefit to local social service agencies – challenges skepticism about the utility of research (Shannon, Kim, & Robinson, 2012; Williams & Reeves, 2004)
Ethics in Student Research
Jay Thomas
Historical Context

- Nuremburg Code (1949)
- Tuskegee syphilis study (1932-72)
- Helsinki Declaration (1975)
- Belmont Report (1978)
Why “Ethics First”?

- Where do students develop ethics?
- Where do teachers teach ethics?
- Examples from the real world of students
  - Counterfeit Coke machine $
  - The Potato Chip Study
  - Social groups in school
IRB (It’s Not Just Another Hoop)

- Guidelines provided by FDA
- Required of any institution receiving federal research funds
- Rationale for IRB
- Composition of IRB
Conversation Starters

- Stanley Milgram's shock box
- Stanford prison experiment
- Stem cell research in the US and Europe
Conclusion

- Feedback? Questions?
- fwilson@aurora.edu
- If you are interested in writing a chapter for our book project, let us know!
References


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