

Evidence of Benefits of Experiential Education – Annotated Bibliography
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This annotated bibliography was created in response to a request for additional evidence-based discussion of the benefits of experiential education for student learning. In particular, much of the literature presented offers empirical evidence for the role of experiential education in improving desired student learning outcomes, including the development of higher order skills, including critical thinking. Several of the articles and resources mentioned also offer insight into how experiential education could be incorporated into the classroom. There is a special emphasis on strategies for incorporating active learning, reflection, and engagement into lectures and assignments, knowing that these pedagogical initiatives can support meaningful learning experiences and outcomes. Several articles also discuss incorporating active learning strategies into large classrooms, knowing that this is especially relevant to current class sizes at the university. This literature represents a broad snapshot of what is available in the scholarship of experiential education and can offer important insights into the value of experiential education as a pedagogical strategy for deeper learning and personal/professional growth.

1. Integrating reflection and assessment to capture and improve student learning

Ash, S. L., Clayton, P. H., & Atkinson, M. P. (2005). Integrating reflection and assessment to capture and improve student learning. *Michigan Journal of Community Service Learning, 11*(2), 49-60.

In the context of service-learning, this article discusses research into the integration of reflection as a key component of experiential education. The use of reflection plays a pivotal role in forming connections between and throughout experiences, as the authors emphasize how reflection and service-learning can inform and reinforce each other (p. 49). The authors demonstrate the value of reflection through describing a strategy and tools for incorporating reflection as a component of two course assessments. In addition to the benefit of reflection as an important data source, the authors also argue that the use of reflective journals and similar writing assignments support students' development of higher order academic outcomes, including reasoning and critical thinking skills. The article describes an assignment that included a series of guided questions that offered students the opportunity to both report on their experiences and emotions while also more deeply reflecting on their actual learning process, including considerations for the quality of their learning (not only the learning experience itself) and connections between their learning and their own (other) experiences. It is

notable that the authors consider reflection as integral to both formative and summative assessment, such that reflection can be used as a pedagogical strategy for encouraging development and critically examining the learning process. The authors also discuss a key challenge for reflection, particularly for experiential education, where students must be given permission to be critical of established theories or other important voices in the field. This work may be antithetical to more traditional teaching strategies, but does offer considerable benefits to encouraging student learning using reflection.

2. The importance of reflection in improving science teaching and learning

Baird, J. R., Fensham, P. J., Gunstone, R. F., & White, R. T. (1991). The importance of reflection in improving science teaching and learning. *Journal of research in Science Teaching*, 28(2), 163-182.

A key idea in this article is its holistic approach to reflection, both as a more robust teaching pedagogy but also, and perhaps more importantly, as a way of understanding the student experience. This holistic theme was also evident in the authors' explicit mention of reflection in both the professional and personal realms, such that teachers engaged in reflection often explore their current teaching practice as well as their past, personal experiences as teachers and researchers. This longitudinal, naturalistic case study also emphasizes reflection as an important aspect of teacher professional development, where instructors were invited to consider at a metacognitive level their role in the classroom and the larger purpose of teaching in the sciences. A notable finding indicated that reflection supported positive development of important skills or competencies as well as attitudinal beliefs related to the importance, value of, and goals associated with the profession. The authors also found evidence of the value of reflecting on processes for teaching and learning, emphasizing a metacognitive approach to reflection that encourages a deeper examination of the 'why' of teaching rather than only remaining the realm of the 'what' or 'how' of an individual's teaching practice.

3. Teaching undergraduate positive psychology: an active learning approach using student blogs

Bridges, R.K., Harnish, R.J. & Sillman, D. (2012). Teaching undergraduate positive psychology: an active learning approach using student blogs. *Psychology Learning and Teaching*, 11(2), 228-237.

In this study, students were asked to keep a blog to record their experiences of participating in three interventions as part of an undergraduate positive psychology course. The authors adapted internet-based interventions supported by Seligman and colleagues: three good things (recording three good things that happened during the day); signature strengths (taking the test and using one of their

strengths in a different way for a week); gratitude letter (writing a letter to someone who has been a positive influence in their life). Students were taught how to maintain the blog, and were given the option to keep it private or public. The activities, which replaced a previous collaborative research project, were integrated throughout the semester, and were used as a formative assessment exercise which accounted for 20% of the final grade. The blogs were evaluated based on punctuality, completeness, and writing quality. When asked about quality of the course and the instructor, students scored it significantly higher compared to the previous offering of the course which did not include blogs. Six months after the course, students continued to use the Three Good Things exercise, but did not always record it, while half said that they used the strengths exercise. Overall, only one student actually continued blogging. The findings provide insight into students' experience with the course; however, they do not provide any insight into blogs' impact on students' learning related to interventions.

4. Active learning within a lecture: Assessing the impact of short, in-class writing exercises

Butler, A., Phillmann, K. B., & Smart, L. (2001). Active learning within a lecture: Assessing the impact of short, in-class writing exercises. *Teaching of Psychology, 28*(4), 257-259.

In exploring research on and evidence for active learning strategies that could be incorporated into a large classroom, this empirical study examined the effectiveness of a written reflective exercise as part of psychology classroom lectures. Students were invited to complete minute papers; short, timed writing exercises in response to a prompt question. They were then asked to share their responses with a peer using think-pair-share, a strategy for encouraging peer engagement by asking students to first reflect on a particular topic or question before meeting in pairs to discuss their responses. The 'share' component of the activity is then accomplished through large group discussion in which the instructor invites feedback and reactions from the entire class. In exploring these strategies for active learning, the authors found that there was some effect on students' motivation to attend and participate in class. In addition, there was some correlation with improved exam performance. The study provides some promising data for the potential use of this strategy in a larger classroom setting as an opportunity to encourage more meaningful student learning as well as potential motivation to attend and actively participate in lectures.

5. Impacts of Experiential Learning Depth and Breadth on Student Outcomes

Coker, J. S., Heiser, E., Taylor, L., & Book, C. (2016). Impacts of Experiential Learning Depth and Breadth on Student Outcomes. *Journal of Experiential Education*, 40(1), 5–23.

In this 5-year study, the authors evaluate the perceived impact of depth (time commitment) and breadth (number of different experiences) of experiential learning activities on student outcomes at Elon University. They focus on the students' perceived impact of five activities (study abroad, undergraduate research, internships, service-learning, leadership experiences) on learning, higher level thinking, relationships and overall college experience. They measure the impact using NSSE data as well as the university's for-credit and not-for-credit experience transcripts from five graduating classes. The study found that both depth and breadth lead to learning gains like a broad general education, and writing clearly and effectively but only depth was associated with higher order thinking like synthesis and application (p.19). Although the authors conclude that more experiential learning whether through depth or breadth is always better, they argue that depth should be taken more seriously particularly in light of universities' emphasis and incentives related to shorter opportunities. The context does not directly align with York's because the study focuses only on outside the classroom experiences, and combines for-credit and not-for-credit experiences. The article includes some explicit mention of the role of reflection in experiential learning.

6. Computer-Based Demonstrations in Cognitive Psychology: Benefits and Costs

Copeland, D.E., Scott, J.R. & Ashton Houska, J. (2010). Computer-Based Demonstrations in Cognitive Psychology: Benefits and Cost. *Teaching of Psychology*, 37, 141-145.

The study investigated whether senior level psychology students at the University of Nevada benefited and/or enjoyed participating in computer-based demonstrations. Half the class read a chapter about a concept, while the other half did the readings and also participated in 30-minute demonstrations outside of class time, using software programs (PsychMate and CogLab). Students in the reading and demonstration group reported higher overall enjoyment of the course and more learning than the read-only group, but there was actually a cost, rather than benefit, in their learning. For example, those in the demonstration-and-reading group were more likely to focus on the smaller details of a procedure rather than speak to the theories at large. The study looked at performance on both essay and multiple choice questions, so the findings are interesting to those who are interested in exploring the skills and level of thinking impacted by active learning, and how that is assessed. The findings also speak to the importance of integrating EE into the course, rather than adding it as a 'component' (i.e. demonstrations

were outside of class time; students seemed to perceive find it time consuming to do both demonstrations and the readings). This may speak to some of the anecdotal evidence that shows students withdrawing from EE courses because they perceive them as requiring more time and effort.

7. Where's the learning in service-learning?

Eyler, J., & Giles, D.E. (1999). *Where's the learning in service- learning?* San Francisco: Jossey-Bass

This book combines seminal theory and current research to offer an evidence-based discussion of the benefits of service-learning. Eyler and Giles discuss the value of service learning both as a tool for student development but also as an opportunity to meld both cognitive and affective competencies within a learning experience. Their approach to exploring service learning involves the collection and analysis of multiple student narratives, discussing a variety of unique experiences with service learning across multiple institutions. The authors point to various studies and research that have investigated the impact of incorporating reflection into a service learning experience to make an argument for the use of service learning to develop several important outcomes for students, including critical thinking and citizenship. Broadly, the authors argue that reflection can promote better learning, particularly if the reflection is continuous and allows students to examine more critically how their service-learning experiences contribute to their understandings of social problems and how their own abilities and attitudes have developed throughout the experience. While more specific to service learning, the book makes an important case for reflection in facilitating and supporting better learning, particularly as students are charged with a more critical examination of their own learning, the topic at hand, and their particular attitudes or beliefs toward the classroom experience or other academic experiential opportunity.

8. School engagement: Potential of the concept, state of the evidence.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109.

This article delves more deeply into a definition and understanding of engagement within an academic setting, providing an overview of research and theory surrounding definitions, measures, precursors, and outcomes of engagement. The area most relevant to discussing experiential education and active learning strategies in large classes is the authors' review of cognitive engagement. Cognitive engagement refers to issues of motivation and self-regulated learning, and represents students'

engagement with course material (and the in class learning experience) as an alternative or addition to more traditional conceptions of engagement that emphasize interaction with peers or the instructor. The authors also discuss the benefits of engagement, including enhanced achievement (measured, in part, by student understanding and performance) and student retention. The article also offers a discussion of important antecedents of engagement, which may offer inspiration for more practical strategies for structuring courses and programs that better support opportunities for student engagement in the classroom.

9. Open-ended questioning: A handbook for educators

Freedman, R.L.H. (1994). *Open-ended questioning: A handbook for educators*. New York: Addison Wesley

Freedman's book offers an argument for and strategies to support the use of open-ended questioning as a tool for student engagement in the classroom. In particular, open-ended questioning is an opportunity to engage larger classes in active learning through facilitated discussion. Open-ended questions can be responded to as part of an in class discussion, or can be used as prompts for reflective writing exercises. Freedman's handbook also offers strategies and suggestions for writing your own open-ended questions as well as tips and tools for assessing students' responses.

10. Predicting student success in a psychological statistics course emphasizing collaborative learning

Gorvine, B.J. & Smith, D.H. (2014). Predicting student success in a psychological statistics course emphasizing collaborative learning. *Teaching of Psychology, 42(1), 56-59.*

The study examines how students' feelings about group work (preference for it, discomfort with it) and their feelings about statistics (anxiety, interest, belief in its value) relate to their performance in a course that includes a collaborative learning approach. Around 200 students across two sections took a pretest and were placed into quintiles based on their performance, leading to 20 groups of five students (one from each quintile). Throughout the term the groups work together on problem sets and conceptual questions (e.g. students complete problem set individually, check each other's work, discuss as a group, and reflect together on conceptual issues). The study found that those who reported a higher preference for group work and lower anxiety about statistics performed better in the course. The study proves insightful in understanding when group will actually help students to achieve learning outcomes,

and also provides good examples of collaborative activities in a statistics course. It may have been interesting to note any differences in performance based on which percentile students belonged to, and what results may have looked like in self-selected rather than assigned groups.

11. Tools for Teaching Cognitive Psychology: Using Public Service Announcements for Education on Environmental Sustainability.

Hager, L. (2011). Tools for Teaching Cognitive Psychology: Using Public Service Announcements for Education on Environmental Sustainability. *Teaching of Psychology*, 38(3), 162-165.

The study examines the impact of an assignment designed to help students in an undergraduate Psychology course deepen the understanding of cognitive psychology, and see its applications in daily life. Students worked in small groups to develop a plan for a public service announcement (PSA) related to environmental sustainability, and received both individual and group grades for various parts of the assignment (e.g. relating principles of cognitive psychology to sustainability behaviours). Students completed an Ecological Footprint quiz and an Environmental Values and Attitudes scale prior to and following the assignment. The quantitative answers indicated a behavioral and attitudinal shift that pointed to increased awareness of environmental sustainability and a decrease in ecological footprint. Students' essays also showed that the assignment contributed to changes in behaviours and attitudes (e.g. more recycling, conserving water, and less food waste). The assignment proves to be an interesting way to integrate cognitive psychology concepts into an applied project. The findings related to behavioural and attitudinal shifts also have implications about some of the other benefits of experiential education, like citizenship. Limitations include the fact that the control group is a research methods course, rather than another cognitive psychology course, and the fact that the study was carried out in a small class of ten students.

12. The Additive Effects of Semi structured Classroom Activities on Student Learning: An Application of Classroom-Based Experiential Learning Techniques.

Hamer, J. (2000). The Additive Effects of Semi structured Classroom Activities on Student Learning: An Application of Classroom-Based Experiential Learning Techniques. *Journal of Marketing Education*, 22(1), 25-34.

The article reports on a study that examined the impact of multiple experiential techniques on learning. Specifically, it examined students' performance in two sections of course that included an active-learning experiential technique (a class project); in one section students were engaged in just the class project and otherwise had a traditional lecture, and in the other section students were engaged in another technique (a small group activity) in addition to the class project. Student learning was measured based on performance on an exam, which included multiple choice definitional questions (i.e. recall), as well as non-definitional questions (i.e. ability to apply concepts and see how they relate to each other). Findings showed that using two experiential learning techniques led to more learning, but there were differences based on students' overall performance. For example, students with overall low or moderate performance tended to show an increase in definitional knowledge, while medium and high overall performance student instead showed an increase in non-definitional knowledge (i.e. higher order). The article is complex in its definitions of experiential learning techniques, but proves insightful in demonstrating the impact of engaging students in multiple and varying degrees of active learning techniques. For example, in order to see an impact on non-definitional higher-order knowledge in overall low-performing students, they may need to engage in even more experiential learning techniques (e.g. outside of class time). Reflection is also mentioned explicitly in the description of the techniques.

13. Incorporating Active Learning Techniques in an Introduction to Psychology Course

Karafantis, D.M. & Lapadula, M. (2011). Incorporating Active Learning Techniques in an Introduction to Psychology Course. *Psychology Learning & Teaching*, 10(1), 32-39.

This study compares performance data (3 midterm tests, one final exam, overall grade) from two introductory psychology courses: one in a traditional style and one that was redesigned to include active learning techniques and online activities (in-class activities and demonstrations, mastery quizzes, PsychInteractive software, peer mentors, and online discussion board). The online components took place outside of class time, and the class time was used in large part to engage in active learning. When the sections were taught by different instructors, there were no differences in how students rated the professors' performance, and no significant difference in students' overall performance, success rate, or retention rate. When the sections were taught by the same instructor there were no differences in students' rating of the professor but students in the redesigned sections performed better than those in

the traditional section on all measured performance data, including overall performance, success, and retention. The inclusion of multiple active learning strategies and online activities makes it challenging to determine which one/s may have had the most positive impact. The intervention described here might be considered an example of a flipped and/or blended learning class.

14. Bringing the field into the classroom: Methods and experiential learning in the 'Politics of Development'

Kenyon, K.H. (2017). Bringing the field into the classroom: Methods and experiential learning in the 'Politics of Development'. *Learning and Teaching in Politics and International Studies*, 37(1), 97-112.

The article outlines a model of including experiential learning activities in a senior-level seminar on the Politics of Development, in a Canadian university. The course director incorporated an interview-assignment into the course, with the purpose of exposing students to practitioners of the field of study, prepare students for independent research, and allow students to have a personal experience with the topic. The instructor engaged the students in several smaller activities to build up their skills for the final interview assignment (e.g. in-class practice interviews, completing research ethics tutorial). Students were able to experience a version of all the stages of the research process: questionnaire development, ethics and consent, interviewing, transcribing and coding, writing and presenting findings, knowledge translation. The instructor also noted that the assignment catalyzed deep understanding, and helped students to: identify gaps in literature; situate individuals and organizations in a larger context, and to examine the concepts of legitimacy and expertise. The findings are observations from the instructor, so a study into the effectiveness of the assignment (e.g. measurement of student learning) would be helpful. This article serves as a very detailed outline for anyone wishing to adopt a similar assignment, and also demonstrates good mapping of Kolb's learning cycle, including explicit mention of reflection.

15. An Active-Learning Approach to Fostering Understanding of Research Methods in Large Classes

LaCrosse, J. et al. (2017). An Active-Learning Approach to Fostering Understanding of Research Methods in Large Classes. *Teaching of Psychology*, 44(2), 1-7.

This quasi-experimental study examines the effectiveness of adding an online student research project to supplement traditional teaching methods in a large Introduction to Psychology class (around 200 students in each section). Students completed seven assignments related to a stage of the research process (e.g. hypothesis, testing hypothesis, interpreting results, creating presentation for a poster session). The 7 assignments were done over 11 weeks and took around 1 hour, and the impact of the intervention was measured by the performance on a quiz about research methods. Graduate students provided an estimated 12 hours/week, over 8 weeks for feedback, grading etc. The findings showed that students in the intervention section scored significantly higher in the research methods quiz compared to students in the control section taught by the same instructor, and in the sections taught by different instructors who also did not include an intervention. The resources required to grade the assignment may not be feasible for a large introductory class at York university, but the recommendations (use scripted feedback that students relate to their work rather than have TAs; use senior undergraduate students rather than TAs; adapt assignments to only be multiple choice) provide interesting alternatives including the possibility for mentorship.

16. Rethinking university teaching: A conversational framework for the effective use of learning technologies

Laurillard, D. (2002). *Rethinking university teaching: A conversational framework for the effective use of learning technologies* (2nd ed). London: RoutledgeFalmer.

Amidst a broader discussion of best practices for university teaching, Laurillard makes an important case for considering the learning process as a dialogue between the teacher and student. The use of reflection figures quite prominently into this dialogue, where students are meant to be encouraged to reflect both on the course content as well as on their own learning process. The author considers reflection as important for both formative and summative feedback en route to a particular (learning) goal, where reflection represents a still untapped opportunity to better engage students in critically examining their learning to ensure they are on track toward their own goals, as well as the goals the teacher has for them. The author also notes that without reflection as part of the activity, a simulation or other classroom activity does not contribute to new or more innovative understandings. The use of reflection is also important in helping teachers ensure that the feedback they provide to students is effective in pursuit of a goal.

17. Team learning: A comprehensive approach for harnessing the power of small groups in higher education

Michaelsen, L.K. (1992). Team learning: A comprehensive approach for harnessing the power of small groups in higher education. *To Improve the Academy, 11*, 107–122

This article conceptualizes classroom engagement through an overview of Team Learning, which the author describes as a way to facilitate active learning in large classes. Team Learning incorporates some elements of a more traditional Think-Pair-Share activity, where students are given a prompt or challenge to review on their own before sharing ideas and responses in a group. The Team Learning technique, however, also includes a test or assessment for the individual student to complete after they have reviewed the material, before moving into a group to work through the same assessment as a team. In these group settings, students will often share not just their responses to test questions but also their process and rationale for arriving at these solutions. The instructor will then provide feedback to the group by scoring their completed exam or providing the ‘correct’ answer. There are also opportunities for formative assessment that are driven by the students themselves, as they must work together to scan and review relevant resources to revise any incorrect answers to the original assessment of their learning, often leading to additional questions for the instructor to respond to. Team Learning may be particularly effective for large classes as it allows instructors to solicit on the spot feedback through formative assessment that is conducted and driven by the students themselves, where the instructor’s role (once the teams have been established and guidelines have been reviewed) is to respond to questions and proposed solutions as they are presented. This “just in time” feedback can also shed light on the students’ learning process for arriving at a particular solution, offering important insight into both how students are learning as well as what information they are understanding or retaining. The article offers both theoretical backing for Team Learning as well as guidelines and suggestions for how to implement this active learning strategy in the classroom.

18. The significance and sources of student engagement

Newmann, F. M., Wehlage, G. G. & Lamborn, S. (1992). The significance and sources of student engagement. In F.M. Newmann (Ed.), *Student engagement and achievement in American secondary schools* (pp. 11–39). New York: Teachers College Press.

This chapter provides an overview of what engagement might or should look like in an academic setting. In particular, the authors discuss students’ engagement with their academic work (sometimes referred

to as cognitive engagement) as their investment in and effort toward their learning. Notably, the authors emphasize that this engagement is not simply motivated by needing to complete or getting good grades, but rather a higher focus on mastering knowledge and skills. The authors also discuss the importance of engagement for student learning and consider factors that influence engagement. These factors include more emotional or intrinsic factors that support students' motivation and sense of belonging, as well as more extrinsic rewards and supporting a sense of fun or enjoyment in the learning process. An additional factor, tied to reflection and experiential education, involves connecting course material and the learning experience to the 'real world'. The authors discuss the importance of ensuring students see value or meaning to what they are learning as being relevant beyond their classroom experience. The importance of experiential education and reflection is therefore pivotal for supporting students in making these connections between their learning and other areas of their lived experience.

19. Formative assessment and self-regulated learning: A model and seven principles of good feedback practice

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199-218.

This article provides an overview of the value of reflection as a means for students to develop self-assessment skills that can support self-regulation while also helping them identify strengths and weaknesses in their learning. The authors liken reflection to a process for self-reflection, arguing that effective feedback can help students develop a stronger capacity for self-regulation. As in several other studies, this article describes reflection and self-assessment, often as part of formative assessment activities, as integral to a students' deeper understanding of their own learning process. Notably, the authors also encourage giving students a more proactive rather than reactive role in generating feedback, extending responsibility and accountability beyond simply completing assignments to include their active role in assessing their own learning. This reframing of the classroom experience again argues for the role of reflection and reflective activities in providing students with insights into their learning experience alongside similar understandings the instructor gains through their own in class assessments.

20. Using problem-based learning in a large classroom

Pastirik, P. J. (2006). Using problem-based learning in a large classroom. *Nurse Education in Practice, 6*(5), 261-267.

This article positions problem-based learning as an opportunity for student engagement in a large classroom. Problem-based learning offers an approach to active learning where students engage in groups to propose solutions to presented challenges that may occur in a particular field or profession. The author discusses a course that incorporated problem-based learning into the curriculum, using a process that emphasized the identification and potential solving of a presented challenge alongside opportunities for students to work together as a team with self-identified roles. The role of experiential education in this process involves students' work in analyzing presented information and synthesizing a solution that would then be presented to the larger class. Students were also invited to reflect, in their small groups, on their overall learning and the group process they were engaged in. The author reported several positive outcomes of problem-based learning for students, including improved communication skills and enhanced responsibility and autonomy from being given the opportunity to direct their own learning experience. There is also discussion in the article about the limitations of problem-based learning, mostly centering on challenges related to students working in groups, as well as a brief discussion of the use of digital tools to support this learning activity.

21. Promoting higher level thinking in Psychology: Is active learning the answer?

Richmond, A.S. & Hagan-Kindelberger, L. (2011). Promoting higher level thinking in Psychology: Is active learning the answer? *Teaching of Psychology, 38*(2), 102-105.

The study examined the impact of active learning versus direct instruction on higher level thinking, by looking at lower and higher level assessments. Seventy-one undergraduate students received either direct instruction or active learning. Active learning was understood as "students creating knowledge for themselves" through: in-class problem-based activities (e.g. worksheets, board games), synthesizing theories, and small/large group discussion. Students in two classes taught by two different instructors were taught two theories via active learning and two theories via direct instruction. Findings showed that participants who engaged in active learning scored significantly better on higher level test questions compared to those who received direct instruction. The authors suggest that active learning emphasizes active involvement with the material, and builds on prior experiences. The findings showed no difference in students' performance in lower level questions, and authors suggest that this is because they test mostly the ability to learn through memorization, something that direct instruction does well. The study is insightful in distinguishing the impact of active learning on different levels of thinking, and the measures of that impact.

22. The pedagogical balancing act: Teaching reflection in higher education

Ryan, M. (2013). The pedagogical balancing act: Teaching reflection in higher education. *Teaching in Higher Education, 18*(2), 144-155.

Ryan's article offers an argument for teaching students to more deeply and more meaningfully reflect. Building on the assertion that "reflection is not an intuitive skill" (p. 154), the article outlines levels of reflection ranging from reporting to reconstructing, where students may begin their reflective journey by documenting their (emotional) responses to experiences to making connections between these experiences, their own insights, and potential plans for future action. The article also provides an argument and strategies for teaching students how to reflect more deeply, including a variety of sample prompts that may be used for reflection assignments. Ryan shares several examples and ideas for how to encourage more meaningful reflection for students and how to recognize when students are beginning to reflect more deeply. Several recommendations are provided based on data gathered from a study exploring reflective practices across several courses at an Australian institution. The study examined how students responded to prompts designed to encourage reflection at multiple levels, while also examining students' responses for evidence of reflection across and within each level. This data, the author argues, helps make the case for the need to scaffold the teaching of reflection as movement from more surface reactions to a deeper analysis of a particular experience to help ensure that students are not led to prioritize some elements of reflection (e.g. reporting) at the expense of making meaningful connections between their current learning, past experiences, and developing plans for future action.

23. Getting more out of less: The benefits of short-term experiential learning in undergraduate sociology courses

Wright, M. C. (2000). Getting more out of less: The benefits of short-term experiential learning in undergraduate sociology courses. *American Sociological Association, 28*(2), 116-126.

The article examines students' and instructors' perspectives of short-term experiential exercises in four sociology courses. Unlike co-ops and service learning, these assignments (unobtrusive observations, field trips and participant observations) are shorter so they can also allow for more time for reflection. The instructors found all three activities to have benefits (methodological and pedagogical ones; helping students understand abstract concepts better; helping students feel more excited about the material, etc.), but noted drawbacks (time constraints; students' level of seriousness; answers lacking

analytical descriptions; and lack of deep reflection). In one case, instructors noted that first year students needed more guidance around the goals and importance of experiential learning. Student feedback was based on only a participant-observation assignment. Students reported a positive experience, noting that it decreased their stereotypes about the subject matter and increased their knowledge. Like the instructors, students also cited time constraints and transportation to the site as a drawback. Of note in this article: the explicit mention of reflection; an outline of the benefits of experiential learning; and discussion on the drawbacks that make it difficult for instructors to incorporate into their course; a set of guidelines for instructors interested in incorporating these experiential learning activities.

24. Encouraging active learning can improve students' performance on examinations

Yoder, J.D. Hochevar, C.M. (2005). Encouraging active learning can improve students' performance on examinations. *Teaching of Psychology, 32*(2), 91-95.

The study examined the impact of active learning on exam performance in three Psychology of Women classes. The authors measured performance on content that was taught with active learning alone, or in addition to lecture, readings, and videos. Active learning included: brief or extended small group or class discussions, exercises, simulations, demonstrations, completion or discussion of scales. The book only teaching: material not covered in class. The study found that students scored higher on items testing material presented through active learning compared to just lecturing, autonomous readings, or videos (in this case, without discussion). Interestingly, the authors found that exam performance on items that were once covered in lecture but later moved to autonomous reading was not impacted (perhaps due to the addition of a peer learning and support component). The study is insightful in its consideration of videos as active learning only when they are followed by discussion. The authors also include suggestions to enhance various active learning techniques (e.g. by asking students to write a "minute paper" after watching a video or a lecture; ask students to discover patterns in cases prior to a lecture; using question to frame discussions).

25. Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice

Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education, 45*(4), 477-501.

The article describes a somewhat cyclical relationship between assessment and reflection, in that reflection can enhance assessment practices while the use of qualitative assessment data may also promote deeper reflection. Yorke provides an overview and analysis of the development of formative assessment practice in higher education, and discusses how current research may support future practice. The author describes reflection quite broadly, including descriptions of reflection on action, reflection in action, and reflection for action. This robust view of reflection can support formative assessment in providing opportunities for students and instructors to critically examine the entirety of a learning experience. In making a case for the importance of formative assessment in supporting student learning, the author further defines the term, including its many forms along continuums of formal to informal evaluation and continuous to occasional uses throughout the learning experience. The article also discusses a more holistic benefit of formative assessment and reflection, as it also provides instructors with valuable insights into their students' learning, such that they can use this feedback to enhance their overall teaching practice. Assessment and reflection, then, are critical in broader competency development and the construction of a more meaningful learning experience for both students and instructors.