

The Inside-Out Prison Exchange Program and Higher Order Thinking: A Propensity Score Matching Approach

BRYAN WYANT
La Salle University

PATRICIA BECKER
The College of new Jersey

Abstract

The Inside-Out Prison Exchange Program (hereafter Inside-Out) is an international program where both currently incarcerated individuals (inside students) and college/university students (outside students) participate in a college course taught within a correctional facility. Generally meeting once a week over a single semester, the Inside-Out pedagogical approach is designed to be collaborative, with an instructor trained to facilitate dialogue attempts to foster an exchange of ideas among the students (Inside-Out Center, 2020; Link, 2016). Instead of relying on direct instruction or lectures by professors commonly used in university classrooms, Inside-Out employs indirect instruction and intergroup dialogue (Allred, Harrison, & O'Connell, 2013). According to the founder and director of Inside-Out, Lori Pompa, "The unique educational experience provides learning dimensions that are difficult to achieve in a traditional classroom" (2002, p. 68). In this context, participants create a space of freedom to share their thoughts which ultimately leads to participants seeing themselves as change agents who are able to be solutions to the problems analyzed. Inside-Out has expanded significantly since the inaugural course in 1997. Currently, there are more than 150 correctional and university partnerships and over 35,000 students have completed an Inside-Out course in the United States and abroad (Inside-Out Center, 2020).

Despite numerous studies related to the Inside-Out program, little research has examined if Inside-Out contributes to the development of the thinking skills necessary for critical thought and problem solving. Utilizing a propensity score matching approach, this study examined if Inside-Out courses provide additional opportunities to develop higher order thinking skills compared to courses held in more traditional settings. Specifically, we address if students in Inside-Out courses indicate their course promotes and emphasizes higher order thinking skills to a higher degree compared to students in non-Inside-Out courses.

Keywords: Inside-Out Prison Exchange Program, education, higher order thinking, propensity-score matching

Literature Review

Research on Inside-Out has primarily focused on the experiences implementing Inside-Out courses and the potential transformational nature of such a course. There have been a small number of studies about how the course might affect learning and comprehension of material. For example, two Inside-Out instructors relying on post hoc observations noted the distinctive environment of Inside-Out poses unique challenges related to liability, recognizing the diversity of the participants, and maintaining an enriching class setting while adhering to both institutional and program rules (Van Gundy, Bryant, & Starks, 2013). Others have documented how teaching an Inside-Out course requires more general planning than traditional courses and presents a number of logistical challenges such as recruiting and retaining students to securing funding (Link, 2016; Mayes, Owens, Falvai, & Du Temple, 2017)

Allred, et al. (2013), in their study of approximately 90 inside and outside students across three institutions, found involvement in Inside-Out lead to positive shifts in self-efficacy for some. Specifically, only inside students experienced statistically significant increases in self-efficacy from the start of their 15-week semester to its end. Others have found that participation in Inside-Out can alter how outside students view individuals who are incarcerated and how inside students broaden their perceptions of themselves and others (Mishne, Warner, Willis, & Shomaker, 2012). Likewise, Hilinski-Rosick and Blackmer's (2014) examination of weekly reflection papers written by outside students suggested a reevaluation of a number of prior held beliefs about those incarcerated and the criminal justice system. Additional analysis of writing assignments supports the transformative nature of Inside-Out (Maclaren, 2015; Pompa, 2002). Lastly, Wyant and Lockwood (2018) utilizing a pretest-posttest design found outside students who participated in Inside-Out were more likely to feel those incarcerated can achieve positive change compared to a nonequivalent control group of university students in traditional courses.

Of the few studies to examine how the experiential nature Inside-Out impacted student learning, Allred (2009) found participation in Inside-Out aided student comprehension of material. Analyzing both short reflection papers throughout the semester and a short survey at the conclusion of the semester from a single Inside-Out course, Allred found students acquired a deep understanding of course content. Allred reasoned the unique class structure with an emphasis on interaction likely contributed to critical reflection of the material by students.

More recently, an evaluation of both inside and outside students, Kubiak and Milanovic (2017) reported that students found the class transformative and increased their knowledge on a variety of issues related to prison policies and the broader criminal justice system. An analysis of reflection papers and responses to a series of questions about course assignments and experiences, the authors described generally positive outcomes related to explicit and tacit knowledge. Also relying on reflection papers, Steil and Mehta (2020) argued participation in the Inside-Out course better heightened student's awareness about individuals' social position and identities and improved students' analysis of theoretical concepts versus courses taught outside of correctional settings.

Rationale for Current Study

Despite widespread implementation of Inside-Out nationally and internationally and an increasing number of studies on its impact, there are still questions regarding the effects of the course has on learning. One of the primary goals of Inside-Out is to create opportunities for participants to take "the educational process to a deeper level" (Pompa, 2002, p. 68) and develop "critical thinking" skills (Pompa, 2013, p. 131). In part to accomplish this, inside and outside students collaborate and analyze issues over the semester as peers. Yet, the majority of studies focus on how views might be altered due to participation in the course (Kubiak & Milanovic, 2017; Mishne, Warner, Willis, & Shomaker, 2012; Werts, 2013; Wyant & Lockwood, 2018). Although, whether or how one's views might be altered is an interesting and potentially important outcome, research has largely ignored the potential effects Inside-Out has on learning. Studies that have attempted to gauge learning outcomes produced via Inside-Out have primarily relied on post hoc examinations of writing assignments and student comments at the completion of the course (Hilinski-Rosick & Blackmer, 2014; Lanterman, 2018; Maclaren, 2015; Pompa, 2002; Steil & Mehta, 2020). Again, there is a great deal value in these types of assessments but work in general has not compared outcomes from Inside-Out to traditional courses held in classroom settings and more specifically how taking Inside-Out aid in learning beyond content covered in the particular course.

Ideally, participation in an Inside-Out course not only contributes to a better grasp of concepts and theories taught in the course but also compels students to better assess and incorporate new information they encounter. A goal of education is to develop students who will be able to apply newly learned information to enhance their understanding of complex situations, broadly referred to as higher order thinking (Bartlett, 1958; Lewis & Smith, 1993; Newmann, 1990).

A stated goal of the Inside-Out program is to create an environment where students can reinterpret information and use new information to broaden their perspective. Part of their mission statement articulates that participation in Inside-Out courses aim for students to approach problems "in

new and different ways” (Inside-Out, 2020, para1). Inside-Out’s use of a facilitator and intergroup dialogue structure aligns with the environment that Mezirow (1997) describes as conducive to developing higher order thinking skills as “learners become increasingly adept at learning from each other and at helping each other learn in problem-solving groups” (p. 11). Furthermore, Inside-Out’s use of a circle among participants emphasizes this environment that Mezirow (1997) details because it sets the tone of equality and that everyone’s voice matters and is equally important in the learning process.

The present study sought to extend current research on Inside-Out by measuring higher order thinking skills utilizing a propensity score matching approach, the first to do so. Prior empirical designs do not recognize that there may be confounding factors that influence both inclusion in the Inside-Out course and perceptions to what degree higher order thinking skills are emphasized in a course. Students participating in Inside-Out courses likely vary in some important ways from students who choose not to participate. For example, unlike courses held in traditional classroom settings, in order to participate in an Inside-Out course, in many instances students receive approval by an instructor thereby possibly selecting a unique subset of students. The current work’s approach of matching subjects on observable baseline characteristics should aid in reducing potential confounders to better gauge how students perceive Inside-Out may affect their learning.

Sample and Methods

The Institutional Review Board (IRB) from the first author’s academic institution approved the survey. Further, student participation was voluntary and no names or other unique identifiers were collected. Toward the conclusion of the fall 2017 semester, paper-and-pencil surveys were distributed at the end of class to students in two separate Inside-Out courses and three different upper-level cross-listed sociology and criminal justice courses.¹ Students had approximately 10 minutes to complete the survey and when finished were instructed to place completed surveys into an envelope that was collected by a university administrative assistant. A total of 94 students completed the survey with 22 Inside-Out student participants and 72 non-Inside-Out students.

Dependent Variable

Four survey questions from the National Survey of Student Engagement (NSSE) were used to evaluate the degree to which a specific course emphasized higher order thinking skills. During the last week of the semester, students were asked to indicate if “This course emphasized analyzing the basic elements of an idea, experience, or theory; This course emphasized organizing ideas, information, or experiences into new, more complex interpretations and relationships; This course emphasized making judgments about the value of information, arguments, or methods; This course emphasized applying theories or concepts to practical problems or in new situations.” While students were initially presented with a six-point Likert scale ranging from 1 to 6, where 1 signified strongly disagree and 6 signified strongly agree, these responses were combined to three options (1 = disagree; 2 = neutral; 3 = agree). The decision to create and analyze fewer categories was made as some of the initial response categories were infrequently selected (Agresti, 2013). The NSSE has been used by others (e.g. Zhao & Kuh, 2004) and the reliability and validity of the survey has been recognized (Kuh et al., 2001). Further, the Cronbach’s α coefficient for the higher order thinking index was .85, which is considered an acceptable reliability coefficient (Nunnally, 1967).

Independent Variables

Other survey questions consisted of basic demographic information including: gender, race, and political ideology (see Appendix A for survey instrument). A similar proportion of Inside-Out participants were white compared to non-Inside-Out participants. However, a greater proportion of Inside-Out

¹ Each of the five classes surveyed for this study, had a separate or unique instructor who was also a fulltime tenured or tenure tracked faculty member.

participants were female and tended to identify as more politically liberal compared to non-Inside-Out participants. See table 1 for a description of the sample.

Table 1

Descriptive Statistics

	Inside-Out Participants			Non-Participants		
	N	M	SD	N	M	SD
Race/Ethnicity (white = 1; nonwhite = 0)	22	0.41	0.50	72	0.44	0.50
Gender (female = 1; male = 0)	22	1.68	0.48	72	1.53	0.50
Political Ideology ^a	22	4.80	1.29	71	4.20	1.46

^a Political Ideology: 1 = Very Conservative; 2 = Conservative; 3 = Somewhat Conservative; 4 = Very Liberal; 5 = Liberal; 6 = Somewhat Liberal

Analysis

Propensity Score Matching (PSM) is often utilized by researchers attempting to detect treatment effects in non-randomized samples (Eisner, Nagin, Ribeaud, & Malti, 2012). In general, the use of PSM attempts to identify cases in a group not receiving treatment that are on average not discernibly different from those who did receive the treatment. For our purpose, participating in Inside-Out is the treatment and being in traditional courses is the control group.

By matching individuals who did not receive treatment based on similar characteristics and to those who did, these data somewhat mimic a randomized experiment and thus reduce extraneous variables in estimating the effects of treatment (Rosenbaum & Rubin, 1983). For this study, the independent variables gender, race and political ideology were used to predict the propensity for being in inside-out class. Then that propensity score was used to find matches and compare those matched pairs on the variable of higher order thinking.

Results**Descriptive Results**

To reiterate, the current work sought to examine whether participation in an Inside-Out course effects our outcome of interest, higher-order thinking skills. A baseline comparison of those who participated in an Inside-Out and non-Inside-Out courses revealed that Inside-Out students reported their course emphasized higher order thinking skills to a higher degree than students reporting on non-Inside-Out courses. See Table 2.

Table 2

Descriptive Results

	Inside-Out Participants			Non-Participants		
	N	M	SD	N	M	SD
Higher order thinking skills index	22	2.73	0.30	72	2.54	0.55

Note: Higher values indicates student reported course emphasized more higher order thinking skills.

While the majority of non-Inside-Out students reported they agreed their course emphasized higher order thinking skills, a small number of respondents to the survey questions reported they disagreed. None of 22 participants from the Inside-Out course disagreed with the notion that their course emphasized higher order thinking skills. In sum, Inside-Out participants universally reported their course highlighted skills that would aid in analyzing, evaluating, and connecting new concepts together in original ways.

Propensity Score Matching Model Results

Utilizing STATA version 16.0, we formed 22 match pairs of treatment versus control based on these matches: gender, race and political affiliation. The estimated treatment effects from the propensity score matting model are presented in Table 3.

Table 3

Propensity Score Matching ATE Estimates

	Coef.	Std. Error	Z	p	95% Conf. Interval	
Inside-Out (yes v no)	0.91	0.51	1.70	0.07	-0.09	1.93

Based on 44 observations. ATE = Average treatment effect

Results suggest that students from Inside-Out courses indicated their course was likely to emphasize higher order thinking skills compared to students from more traditional courses. On average, the treatment group or students who were in Inside-Out have a .9 score greater on the higher order thinking scale ($p = .07$) than the control group or students who did not take an Inside-Out course. Although the findings approached statistical significance at the conventional .05 level, they did not attain statistical significance at the $p < 0.05$. In the discussion section below, we consider reasons why and what that could mean for our interpretation of the results.

Diagnostic Test and Sensitivity Analysis

Logit diagnostic models were not significant at the .05 level. These diagnostic results of non-significance suggest the treatment and control were similar. This is the desired outcome for PSM analysis, since the aim is to identify subjects who are on average similar in nature minus exposure to the treatment. In sum, in terms of matching Inside-Out students and students in traditional class settings they were not significantly different on the variable of interest, thereby suggesting comparisons on the outcome between the treatment and control were suitable.²

Discussion

The current work sought to evaluate the degree to which an Inside-Out course emphasizes higher order thinking skills relative to non-Inside-Out courses. While the number of Inside-Out courses offered has considerably expanded since the first course taught in 2002, questions remain about whether such courses facilitate students' ability to connect information and concepts. By using a propensity score matching approach, the current work should continue to build the knowledgebase about the possible treatment effects of Inside-Out on student learning.

The results suggested students who participated in an Inside-Out course felt their course emphasized greater levels of higher order thinking relative to those who took only traditional courses at universities. Students in Inside-Out should be better prepared than students in traditional courses to link information and concepts in novel situations. Further, students should be more equipped to move beyond simple memorization to synthesis and critical evaluation.

Although students from Inside-Out reported higher order thinking scores than students who from non-Inside-Out courses, they were not quite statistically significant ($p = .07$) at the conventional less than .05 standard. However, considering the effect was in the expected direction, calculating significance based on a one-tailed test and the additional statistical power afforded could be warranted. At the same time, caution should be used as there is still the potential to make type I error and one-tailed tests should

² Results and matching were based on nearest neighbor matching. Additional analyses were performed via caliber matching (not presented here) but results were not significantly altered.

not be used in an effort to simply provide more power to detect a significant effect. Further, beyond assessing the appropriateness of a one-tailed or two-tailed test for data analysis, researchers have broadly questioned the use or at least an overreliance on statistical power as primary means to gauge the strength of findings (Gelman, Skardhamar, & Aaltonen, 2020; Wooditch, Fisher, Wu, & Johnson, 2020). This is especially true when examining statistically significant effect sizes with small samples like the one used here. The sample size may have resulted in insufficient statistical power.

Next, although students in Inside-Out reported their course stressed the development and greater use of higher order thinking skills, it was beyond the scope of the current research to determine what specific aspects of Inside-Out courses lead to this result. However, prior work on Inside-out might shed light on the tendency of Inside-Out students to report greater higher order thinking scores. Allred (2009) noted the structure of the course helps facilitate critical reflection. Whereas many courses utilize direct or lecture based instructional approach, Inside-Out instructors are trained to adopt the role of a facilitator. In this role, beyond sharing knowledge and expertise, an instructor guides students via questions and presenting options where students can use various criteria to make independent and informed choices (Grasha, 1994). The dynamic created by a facilitator where participation is encouraged has been found to promote analysis and evaluation of material (Mayer, 1986). Critical reflection and the development of higher order think skills may be important complimentary components and key aspects for transformational learning (Sahin & Dogantay, 2018; Slavich & Zimbardo, 2012).

In addition to the possible essential role of course dialogue in general, work has also highlighted that dialogue with people who possess a diverse range of views aids in developing higher order thinking skills (Barnes & Todd, 1977). Although it is not clear if Inside-Out courses bring together people with diverse viewpoints, it is certainly plausible the mixing of inside and outside students who likely have had different lived experiences results in a less homogenous class than ones held on college campuses. Further, typically, Inside-Out class settings are organized with students sitting in a circle and alternating seats of inside and outside students. This arrangement and other interactional templates such as small group discussion likely ensures engagement with multiple viewpoints. Research on Inside-Out has found that participation has resulted in the shifting of one's views and to reconsider previously held positions (Wyant & Lockwood, 2018). The mixing and interface among students in prison-based courses might be a key mechanism for student learning (Hilinski-Rosick & Blackmer, 2014). When student's frames of reference are challenged, they might reflect on their beliefs (Rogers, 2019). This aligns with how Pompa (2002) described Inside-Out's unique structure's ability to foster students' assessment of information from multiple points of view.

As well as the course structure, the course content might also contribute to students being able to better identify complex relationships, a key aspect of higher order thinkers. According to the Inside-Out Center, courses are designed to examine social problems systemically, and consider if and how phenomena may be influenced by broader situational factors (2020).

Limitations and Conclusions

Important limitations of this study should be acknowledged. It is well known that the estimate treatment effects from applications of propensity scores are sensitive to the inclusion of covariates (Loughran, et al., 2015). Although propensity score matching attempts to take into account baseline differences in the groups being compared, we were only able to incorporate a limited number of covariates into the creation of the propensity score. Due to the limited number of covariates, differences in higher order thinking scores between Inside-Out and non-Inside-Out students might be due to unobserved predictors. Additionally, related to the prior point, difference between Inside-Out and non-Inside-Out could be due to differences in the individual pedagogy of each instructor. While, all five of the courses surveyed had either explicitly stated critical thinking as one of the learning objectives of the course or indicated students would weigh evidence from multiple perspectives, reflect and evaluate new information. The courses did differ in important ways, as the Inside-Out course uses exclusively collaborative and indirect instruction whereas the three non-Inside-Out courses employed some direct or traditional lectures. Lastly, perceptions from inside students were not collected for the current research.

Future research should also measure the effects of Inside-Out courses from the perspective of individuals who are incarcerated to provide voices of those who are incarcerated, as they unfortunately are often excluded (Telep, Wright, Haverkate, & Meyers, 2020).

Despite these concerns, the present study adds to the growing literature on Inside-Out. To reiterate, unlike most college courses, outside student participation in an Inside-Out course generally requires approval from the course instructor and might even require an interview with potential students as part of the process. The course content and setting coupled with these screening practices might result in participants that differ in important ways from students who have not taken an Inside-Out course. The use of propensity score matching should control for some of the differences between students and generally reduce potential bias between the samples.

Results of the current study are supportive of the possible valuable impacts, specifically encouraging students to use or develop higher order thinking skills of an Inside-Out course. This is especially important as research has touted the benefits of active learning over traditional methods (Kay, MacDonald, & DiGiuseppe, 2019). As the value of postsecondary education has come under increased scrutiny, colleges must seek to new and innovative ways to fulfill their mission (Alexander et al., 2019); therefore, courses like Inside-Out that have shown to emphasize skills employers find desirable (Tapper, 2004). Other courses might emulate aspects of Inside-Out (e.g. collaborative learning, dialogic teaching) to better prepare and meet the academic needs of students.

References

- Alexander, B., Ashford-Rowe, K., Barajas-Murph, N., Dobbin, G., Knott, J., McCormack, M., ... & Weber, N. (2019). *Horizon Report 2019 Higher Education Edition*. EDU19, 3–41.
- Allred, S. L. (2009). The Inside-Out Prison Exchange Program: The impact of structure, content, and readings. *Journal of Correctional Education, 60*(3), 240–258.
- Allred, S. L., Harrison, L. D., & O’Connell, D. J. (2013). Self-efficacy: An important aspect of prison-based learning. *The Prison Journal, 93*(2), 211–233. <https://doi.org/10.1177/0032885512472964>
- Agresti, A. (2013). *Categorical data analysis* (3rd ed.). Hoboken, NJ: John Wiley & Sons.
- Barnes, D., & Todd, F. (1977). *Communication and Learning in Small Groups*. Routledge & Kegan Paul.
- Bartlett, F. (1958). *Thinking: An experimental and social study*. New York: Basic Books.
- Eisner, M., Nagin, D., Ribeaud, D., & Malti, T. (2012). Effects of a universal parenting program for highly adherent parents: A propensity score matching approach. *Prevention Science, 13*(3), 252–266. <https://doi.org/10.1007/s11121-011-0266-x>
- Grasha, A. F. (1994). A matter of style: The teacher as expert, formal authority, personal model, facilitator, and delegator. *College Teaching, 42*(4), 142–149. <https://doi.org/10.1080/87567555.1994.9926845>
- Gelman, A., Skardhamar, T., & Aaltonen, M. (2020). Type M error might explain Weisburd’s paradox. *Journal of Quantitative Criminology, 36*, 295–304. <https://doi.org/10.31235/osf.io/ahnd4>
- Hilinski-Rosick, C. M., & Blackmer, A. N. (2014). An exploratory examination of the impact of the Inside-Out Prison Exchange Program. *Journal of Criminal Justice Education, 25*(3), 386–397. <https://doi.org/10.1080/10511253.2014.922593>

- Inside-Out Center. (2020). The Inside-Out Prison Exchange Program: About Inside-Out. Retrieved from <http://www.insideoutcenter.org/about-inside-out.html>
- Kay, R., MacDonald, T., & DiGiuseppe, M. (2019). A comparison of lecture-based, active, and flipped classroom teaching approaches in higher education. *Journal of Computing in Higher Education*, 31(3), 449–471. <https://doi.org/10.1007/s12528-018-9197-x>
- Kubiak, S. P., & Milanovic, E. (2017). Prison as a site for experiential learning in social work: Inside-Out Prison Exchange Program. *Journal of Baccalaureate Social Work*, 22(1), 143–158. <https://doi.org/10.18084/1084-7219.22.1.143>
- Kuh, G. D., Hayek, J. C., Carini, R. M., Ouimet, J. A., Gonyea, R. M., & Kennedy, J. (2001). NSSE technical and norms report.
- Lanterman, J. (2018). Transformative and social justice dimensions of a jail-based college course. *Dialogues in Social Justice: An Adult Education Journal*, 3(1), 46–65.
- Link, T. C. (2016). Breaking down barriers: Review of an inside/out prison exchange program in a jail setting. *Journal of Prison Education and Reentry*, 3(1), 50–55. <https://doi.org/10.15845/jper.v3i1.923>
- Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory into Practice*, 32(3), 131–137.
- Loughran, T. A., Wilson, T., Nagin, D. S., & Piquero, A. R. (2015). Evolutionary regression? Assessing the problem of hidden biases in criminal justice applications using propensity scores. *Journal of Experimental Criminology*, 11(4), 631–652. <https://doi.org/10.1007/s11292-015-9242-y>
- Maclaren, K. (2015). The magic happens inside out: A reflection on the transformative power of self-expression and dialogical inquiry in inside-out prison exchange courses. *Mind, Culture, and Activity*, 22(4), 371–385. <https://doi.org/10.1080/10749039.2015.1075045>
- Mayer, J. (1986). Teaching critical awareness in an introductory course. *Teaching Sociology*, 14(4), 249–256. <https://doi.org/10.2307/1318382>
- Mayes, L., Owens, T., Falvai, J., & Du Temple, T. (2017). Turning correctional education inside-out: Experiences and lessons from a university partnership. *Innovation in Education: Voices from the Front Line*, 57.
- Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 1997(74), 5–12. <https://doi.org/10.1002/ace.7401>
- Mishne, L., Warner, E., Willis, B., & Shomaker, R. (2012). Breaking down barriers: Student experiences of the Inside-Out Prison Exchange Program. *Undergraduate Journal of Service Learning and Community-Based Research*, 1, 1–14.
- Newmann, F. M. (1990). Higher order thinking in teaching social studies: A rationale for the assessment of classroom thoughtfulness. *Journal of Curriculum Studies*, 22(1), 41–56. <https://doi.org/10.1080/0022027900220103>
- Nunnally, J. C., Bernstein, I. H., & Berge, J. M. T. (1967). *Psychometric theory* (Vol. 226). New York: McGraw-Hill.

- Pompa, L. (2002). Service-learning as crucible: Reflections on immersion, context, power, and transformation. *Michigan Journal of Community Service Learning*, 9(1), 67–76. https://doi.org/10.1057/9781403981042_11
- Pompa, L. (2013). One brick at a time: The power and possibility of dialogue across the prison wall. *The Prison Journal*, 93(2), 127–134. <https://doi.org/10.1177/0032885512472479>
- Rogers, C. (2019). Transforming students through integrative and transformative learning in a field-based experience. *Journal of Transformative Learning*, 6(1).
- Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1), 41–55. <https://doi.org/10.1093/biomet/70.1.41>
- Sahin, M., & Dogantay, H. (2018). Critical thinking and transformative learning. *Journal of Innovation in Psychology, Education and Didactics*, 22(1), 103–114. <https://files.eric.ed.gov/fulltext/ED593584.pdf>
- Slavich, G. M., & Zimbardo, P. G. (2012). Transformational teaching: Theoretical underpinnings, basic principles, and core methods. *Educational Psychology Review*, 24(4), 569–608. <https://doi.org/10.1007/s10648-012-9199-6>
- Steil, J., & Mehta, A. (2020). When prison is the classroom: Collaborative learning about urban inequality. *Journal of Planning Education and Research*, 40(2), 186–195. <https://doi.org/10.1177/0739456x17734048>
- Tapper, J. (2004). Student perceptions of how critical thinking is embedded in a degree program. *Higher Education Research and Development*, 23(2), 199–222. <https://doi.org/10.1080/0729436042000206663>
- Telep, C. W., Wright, K. A., Haverkate, D. L., & Meyers, T. J. (2020). The value of participatory action research in corrections: Introduction to the special issue. *Corrections*, 5(1), 1–5. <https://doi.org/10.1080/23774657.2020.1713636>
- Van Gundy, A., Bryant, A., & Starks, B. C. (2013). Pushing the envelope for evolution and social change: Critical challenges for teaching inside-out. *The Prison Journal*, 93(2), 189–210. <https://doi.org/10.1177/0032885512472691>
- Werts, T. (2013). Tyrone Werts: Reflections on the Inside-Out Prison Exchange Program. *The Prison Journal*, 93(2), 135–138. <https://doi.org/10.1177/0032885512472483>
- Wooditch, A., Fisher, R., Wu, X., & Johnson, N. J. (2020). P-value problems? An examination of evidential value in criminology. *Journal of Quantitative Criminology*, 36(2), 305–328. <https://doi.org/10.1007/s10940-020-09459-5>
- Wyant, B. R., & Lockwood, B. (2018). Transformative learning, higher order thinking, and the Inside-out Prison Exchange Program. *Journal of Correctional Education*, 69(3), 49–67.
- Zhao, C. M., & Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education*, 45(2), 115–138. <https://doi.org/10.1023/b:rihe.0000015692.88534.de>

Author's Note: Brian Wyant is an Associate Professor and Chair of the Department of Sociology and Criminal Justice at La Salle University. Patricia Becker is an Assistant Professor in the Department of Criminology at the College of New Jersey.

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Appendix A: Survey instrument

Q. 1 What is your gender?

- (a) Male
- (b) Female
- (c) Gender variant (do not conform to socially defined male or female gender)

Q. 2 What is your major?

- (a) Criminal Justice Only
- (b) Criminal Justice and second major
- (c) Other/Undecided

Q. 3 Ethnicity origin (or Race): Please specify your ethnicity.

- (a) Asian/Pacific Islander
- (b) Black or African American
- (c) Hispanic or Latino
- (d) Native American or American Indian
- (e) White
- (f) Other

Q. 4. Academic Standing

- (a) Freshman
- (b) Sophomore
- (c) Junior
- (d) Senior

Q. 5. Age: _____ years old.

Q. 6. Ideology- Which one of the following best describe your political ideology

- (a) Very conservative
- (b) Conservative
- (c) Somewhat conservative
- (d) Somewhat liberal
- (e) Liberal
- (f) Very liberal
- (g) Other

Please indicate how much you agree/disagree with the statements below

Place an "X" in the appropriate box – ONLY focusing on THIS course		Disagree Strongly	Disagree	Disagree Somewhat	Somewhat Agree	Agree	Agree Strongly
Q. 7	THIS course emphasized analyzing the basic elements of an idea, experience, or theory						
Q. 8	THIS course emphasized organizing ideas, information, or experiences into new, more complex interpretations and relationships						
Q. 9	THIS course emphasized making judgments about the value of information, arguments, or methods.						
Q. 10	THIS course emphasized applying theories or concepts to practical problems or in new situations						