Scholarship of Teaching and Learning in Psychology

Dispositional Intelligence of the Five-Factor Model as a Learning Outcome in an Undergraduate Personality Course

James B. Moran, Laura M. Perry, Michael Hoerger, and Damian R. Murray

Online First Publication, February 17, 2022. http://dx.doi.org/10.1037/stl0000315

AMERICAN PSYCHOLOGICAL ASSOCIATION

Scholarship of Teaching and Learning in Psychology

ISSN: 2332-2101

https://doi.org/10.1037/stl0000315

PEDAGOGICAL POINTS TO PONDER

Dispositional Intelligence of the Five-Factor Model as a Learning Outcome in an Undergraduate Personality Course

James B. Moran[1], Laura M. Perry[1, 2], Michael Hoerger[1], and Damian R. Murray[1]

[1] Department of Psychology, Tulane University

[2] Department of Medical Social Sciences, Northwestern University Feinberg School of Medicine

This pedagogical prime aimed to examine whether undergraduate education in personality psychology was associated with increases in dispositional intelligence, a key variable underlying social skills. The sample consisted of students enrolled in a small *Introduction to Personality* college course who completed a summative performance-based assessment of their conceptual reasoning that required a complex application of their understanding of personality. On the first day of class, the students completed a dispositional intelligence scale, demonstrating their precourse understanding of how personal adjectives (e.g., *insecure*) correspond to particular personality dispositions (e.g., neuroticism). They took the same scale again on the last day of class to assess if learning about the Five-Factor Model (FFM) during the class was associated with increased dispositional intelligence scores. Results from this longitudinal study revealed that participants had an increase in dispositional intelligence from the first to last day of class ($d = 0.89$, $p = .001$), especially when perceiving the dispositions of openness ($d = .59$, $p = .04$) and agreeableness ($d = .69$, $p = .019$). In conclusion, a college personality course emphasizing the FFM was associated with increases in a measure of personality understanding.

Keywords: personality psychology, teaching personality, dispositional intelligence, Five-Factor Model (FFM), personality judgment

Personality psychology examines individual variation among various dispositions/traits, defined as relatively independent and enduring patterns of thinking, feeling, and behaving (Schultz & Schultz, 2016). Educating college students about personality psychology provides them with a scientific understanding of how people may differ on various traits and behaviors, which could be useful for a variety of academic, social, and professional activities. Since the course content of a college-level course in personality psychology covers material related to how people are both similar and unique, it would behoove professors to examine if a formal, summative evaluation of students' understanding of personality traits increases after taking the course. This may have positive long-term outcomes for students since the ability to understand others' personalities has been related to better psychological adjustment (Human & Biesanz, 2011), higher scores in courses that focus on human interaction (Mayer & Skimmyhorn, 2017), and more altruistic behaviors at work (Mayer et al., 2018). Individual differences in one's understanding of core personality *dispositions* that vary across people (e.g., the 5 core factors represented in the Five-Factor Model [FFM]) is known as dispositional intelligence (Christiansen et al., 2005). Dispositional intelligence consists of three subcomponents: trait induction (understanding of the behavioral indicators of each trait), trait extrapolation

James B. Moran https://orcid.org/0000-0002-2707-0477
Michael Hoerger https://orcid.org/0000-0002-4398-2820
Laura M. Perry was supported by the NIH/NCI training grant T32CA193193.
Correspondence concerning this article should be addressed to James Moran, Department of Psychology, Tulane University, 2007 Percival Stern Hall, New Orleans, LA 70118, United States. Email: jmoran5@tulane.edu

(understanding of how traits covary with another), and trait contextualization (understanding of how traits and situations interact to influence behavior). Previous research has shown that a valid measure of this construct has correlated with being accurate in identifying an acquaintances' personality (De Kock et al., 2015; Powell & Bourdage, 2016) and emotions (Hoerger et al., 2012). Thus, having more formal knowledge of personality can be beneficial for interpersonal and professional outcomes.

In the present study, we focused on dispositional intelligence as a learning outcome of a college course in personality psychology. Specifically, this study assessed whether students in *Introduction to Personality* course experienced an increase from the beginning of the semester to the end of the semester in the trait induction subcomponent. Based on recent calls to structure personality education around the FFM and other trait theories of personality (Schultz & Schultz, 2016), a theme throughout the course involved teaching students to accurately identify critical behavioral attributes of each of the five factors. Thus, the trait induction subcomponent was most relevant to our study. We hypothesized that students' dispositional intelligence would increase from the first to the last day of the course.

Method

Participants and Procedure

The project was authorized by the Tulane University Institutional Review Board (#2021-948) and consisted of undergraduates ($N = 19$; $M_{age} = 20.11$, $SD_{age} = 0.81$) from Tulane University who had completed *Introduction to Psychology* as a prerequisite. Participants were mainly seniors and juniors (79.0%), women (68.4%), and psychology majors (68.4%). The study was powered at 80% to detect a Cohen's $d \geq 0.68$ as statistically significant on within-subjects mean comparisons and $rs \geq .46$.

Dispositional Intelligence

On the first day (Time 1) and last day (Time 2) of the Fall 2019 semester, we administered a 20-multiple-choice-item measure of the trait induction subcomponent of dispositional intelligence (Christiansen et al., 2005). This subscale consists of a brief description of each factor in the FFM, that is, Openness (2 items), Conscientiousness (7 items), Extraversion (3 items), Agreeableness (3 items), and Neuroticism (5 items), then asks participants to correctly match 20 adjectives (e.g., "Insecure," "Talkative") with the factor it characterizes (Christiansen et al., 2005). Total scores ($\alpha = .71$) represented the proportion of correctly answered items.

Other Assessments and Learning Outcomes

On the first day of class (Time 1), students rated their prior knowledge of personality psychology and anticipated enjoyment of the course using a Likert-type scale of 1 (*not at all*) to 7 (*very much*). The students also completed graded assessments throughout the course, including four exams, five unannounced reading quizzes, four discussion prompts, and a final presentation. For each discussion prompt, students selected an empirical article from a reading list and integrated and critiqued findings based on what they had learned in lectures and readings. For their final presentation, the students engaged in a group project where they assessed and interpreted individual differences of a fictional character (most groups analyzed fictional characters using the Dark Triad—consisting of the personality dispositions narcissism, Machiavellianism, and psychopathy, which encompass socially undesirable characteristics such as self-centeredness, lack of empathy, and exploiting others (Jonason & Webster, 2010). Finally, students were graded on professional behavior, participation, and attendance. Exam, quiz, and discussion prompt scores used in analyses reflect students' average grades in each category.

Results

The average of the dispositional intelligence total scale significantly increased from Time 1 ($M = 61.0\%$, $SD = 13.9\%$) to Time 2 ($M = 72.6\%$, $SD = 10.7\%$); $t(18) = -3.86$, $p = .001$, $d = 0.89$ (Table 1). On average, students increased by 11.65%, including a max change score of +40%. We also computed a reliable change index (RCI) on the dispositional intelligence total scale for each student in the class. This RCI score evaluated whether individual-level change from Time 1 to Time 2 was greater than what would be expected from random variation due to measurement error in the assessment. Students with an

Table 1
Change in Dispositional Intelligence From Time 1 to Time 2

Variable	Time 1 % Correct (*SD*)	Time 2 % Correct (*SD*)	Cohen's *d*
Total scale	61.0% (13.9%)	72.6% (10.7%)	0.89**
Neuroticism	49.3% (21.2%)	64.2% (17.1%)	0.56
Extraversion	66.6% (17.8%)	75.4% (18.7%)	0.54
Conscientiousness	70.4% (15.7%)	76.0% (13.5%)	0.25
Openness	46.6% (22.8%)	65.8% (29.1%)	0.59*
Agreeableness	62.2% (30.5%)	80.7% (30.0%)	0.69*

Note. Percentages presented in the table depict the class average percent correct for each scale. The mean, median, and mode for time point 1 was 61.0%. Time 1 = first day of the semester; Time 2 = last day of the semester.
* $p < .05$. ** $p \leq .001$.

RCI $\geq$ 1.96 were defined as having experienced reliable improvement on the dispositional intelligence measure, and students with an RCI > 0 were classified as experiencing any improvement. This RCI analysis found that 73.7% of students experienced any increase in their score from Time 1 to Time 2, and 26.3% experienced a reliable increase.

Results separated by personality factor revealed that students increased their understanding of openness, $t(14) = -2.26$, $p = .041$, and agreeableness, $t(14) = -2.65$, $p = .019$, but results on the other three factors were not statistically significant ($ps \geq .052$). Spearman correlations (Table 2) revealed that students' increase in dispositional intelligence was related to their average discussion prompt grade, $r(19) = .51$, $p = .03$. Although these effects were moderate in size, dispositional intelligence was not statistically significantly related to the average exam grade, $r(19) = -.03$, $p = .89$, or other assessments ($rs \leq .31$, $ps \geq .19$).

Discussion

This study found that students' dispositional intelligence significantly increased after taking an introductory-level personality course. To our knowledge, this was the first study to assess dispositional intelligence as a learning outcome for a college personality course. Results suggest that college students enrolled in a personality course gained a better understanding of personality dispositions encompassed in the FFM. Students specifically gained a better understanding of Openness and Agreeableness. These factor-level findings may reflect the Self–Other Knowledge Asymmetry Model (Solomon & Vazire, 2016), where observable traits (e.g., extraversion) are better known. Agreeableness and Openness are less observable by others, and therefore students may have had more to learn about these traits during the class. However, this conclusion is speculative based on the multiple exploratory tests that were conducted.

Table 2
Correlations Between Change in Dispositional Intelligence and Other Course Assessments

Variable	1	2	3	4	5	6	7	8	9
1. Dispositional intelligence change	1								
2. Self-reported personality knowledge	.33	1							
3. Predicted course enjoyment	−.03	.04	1						
4. Exams (average of 3)	−.03	.08	.03	1					
5. Fictional character presentation	.18	.00	−.01	.33	1				
6. Discussion prompts (average of 4)	.55*	.17	−.01	.38	.43	1			
7. Professionalism grade	.32	−.08	.14	−.09	.55*	.54*	1		
8. Participation grade	.24	.24	.40	.60**	.36	.48*	.28	1	
9. Reading check grade (average of 4)	.07	−.15	−.06	.29	−.01	.27	.18	.45	1
10. Absences	.15	−.20	.17	−.31	.06	−.03	−.14	.10	−.04

* $p < .05$. ** $p < .01$.

Improving a student's dispositional intelligence can lead to important outcomes for their academic and professional life. First, previous work suggests that dispositional intelligence has been associated with understanding other's personalities more effectively (De Kock et al., 2015; Powell & Bourdage, 2016), and it significantly predicts conducting better job interviews (Speer et al., 2019), which suggests that dispositional intelligence has applicable interpersonal and professional consequences. Therefore, universities may benefit from educating their students on this ability which may have long-lasting outcomes on their academic achievement in school as well as in their careers. For example, a manager would likely need to predict job candidates' behavioral patterns during personnel selection to choose the best person for a given job.

Moreover, correlations found that students who experienced a greater increase in their dispositional intelligence scores also received higher grades on the discussion prompt assignments throughout the course. The discussion prompts required students to read an empirical article and *integrate* the information with other material learned in class. The course was broken into sections devoted to understanding personality through different perspectives (i.e., biological, social/cultural, self, health). The culminating class period within each section was comprised of a discussion period based around the discussion prompt assignments. Students read an empirical paper related to the section and then completed a discussion prompt assignment asking them to discuss how the findings from the research article aligned with or disagreed with the content covered already the class section. Thus, the process of critically evaluating and integrating the material from the readings might have led to reviewing course material and a better understanding of each personality trait's specific behavioral, emotional, and cognitive aspects. This form of analysis and critical thinking, which are cognitively demanding categories of learning assessments according (Bloom et al., 1956), may have been the catalyst in their increase in dispositional intelligence as a learning outcome.

Although more evidence is needed to make formal classroom recommendations, future personality instructors are encouraged to develop students' skills underlying trait induction or dispositional intelligence to ensure that students obtain real-world applications of the course content. This can be achieved by creating assignments where students need to reflect actively on how one's behavior is related to dispositions. In our course, the fictional character assignment allowed students to apply their personality knowledge and evaluate a person's behavior based on their understanding of trait theories. However, this assignment could be revised to be even more relevant for the trait induction learning outcome if instructors require students to focus specifically on the FFM. Therefore, including learning objectives that focus on developing more generalizable skills such as perceiving personality can benefit a broad spectrum of students.

Nevertheless, the major limitations of the present study deserve note. First, we did not implement random assignment or a control group, so increases in dispositional intelligence cannot be attributed solely to enrollment in the course. However, there is little reason to anticipate that students' dispositional intelligence would increase throughout the study timeline without personality education (e.g., through effects of maturation or history). A true experimental test of the personality course would be difficult to implement, given our inability to randomly assign students' course enrollment status. However, future studies can use random assignment to test the impact of personality education interventions in the laboratory setting, or they could compare changes in trait induction between a nonrandomized group of students enrolled in a personality course compared to a control group during the same semester. Additionally, this study was not designed to allow us to draw inferences about which aspects of the course, if any, drove the observed increase in dispositional intelligence scores. If the significant increase is shown to replicate when comparing against a control group, another future direction could design comparative effectiveness studies to home in on the "active ingredients" of the course that account for dispositional intelligence improvement. However, this limitation is understandable for early-stage research such as ours that was designed to examine preliminary evidence. Another limitation is that experimenter bias could have occurred since two of the authors taught the course. However, the potential for bias was partially mitigated because students did not learn the purpose of responding to the measure until after completing the posttest measure. Finally, the students in our sample consisted

mainly of juniors and seniors, which could have impacted the results since students may have had more exposure to the FFM in previous courses. However, self-reported knowledge of personality before the class was not related to dispositional intelligence change. Conducting future studies with larger sample sizes, which will increase statistical power, as well as experimental design, and a diverse range of students will be important for advancing this research topic.

In the future, researchers may design longitudinal psychoeducation studies to inform individuals about personality at the start of their academic journey or professional career and then assess how those individuals interact with their classmates or coworkers over time. Researchers may use professional outcomes instead of measuring one's accuracy or understanding of personality. Those who have received this formal education may have less conflict in the future with their coworkers and may increase different career duties in their academic careers. This longitudinal analysis would be an efficient way to assess the efficacy of these teaching methods from above.

To conclude, we found that college-level personality education was associated with increases in dispositional intelligence from the first to the last day of class. This finding provides initial and compelling evidence that prolonged, summative, in-depth education of the FFM has implications for increasing personality judgments.

References

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (Eds.). (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook 1: Cognitive domain*. David McKay.

Christiansen, N. D., Wolcott-Burnam, S., Janovics, J. E., Burns, G. N., & Quirk, S. W. (2005). The good judge revisited: Individual differences in the accuracy of personality judgments. *Human Performance*, *18*(2), 123–149. https://doi.org/10.1207/s15327043hup1802_2

De Kock, F. S., Lievens, F., & Born, M. P. (2015). An in-depth look at dispositional reasoning and interviewer accuracy. *Human Performance*, *28*(3), 199–221. https://doi.org/10.1080/08959285.2015.1021046

Hoerger, M., Chapman, B. P., Epstein, R. M., & Duberstein, P. R. (2012). Emotional intelligence: A theoretical framework for individual differences in affective forecasting. *Emotion*, *12*(4), 716–725. https://doi.org/10.1037/a0026724

Human, L. J., & Biesanz, J. C. (2011). Through the looking glass clearly: Accuracy and assumed similarity in well-adjusted individuals' first impressions. *Journal of Personality and Social Psychology*, *100*(2), 349–364. https://doi.org/10.1037/a0021850

Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: A concise measure of the dark triad. *Psychological Assessment*, *22*(2), 420–432. https://doi.org/10.1037/a0019265

Mayer, J. D., Lortie, B., Panter, A. T., & Caruso, D. R. (2018). Employees high in personal intelligence differ from their colleagues in workplace perceptions and behavior. *Journal of Personality Assessment*, *100*(5), 539–550. https://doi.org/10.1080/00223891.2018.1455690

Mayer, J. D., & Skimmyhorn, W. (2017). Personality attributes that predict cadet performance at West Point. *Journal of Research in Personality*, *66*, 14–26. https://doi.org/10.1016/j.jrp.2016.10.012

Powell, D. M., & Bourdage, J. S. (2016). The detection of personality traits in employment interviews: Can "good judges" be trained? *Personality and Individual Differences*, *94*, 194–199. https://doi.org/10.1016/j.paid.2016.01.009

Schultz, D. P., & Schultz, S. E. (2016). *Theories of personality*. Cengage Learning.

Solomon, B. C., & Vazire, S. (2016). Knowledge of identity and reputation: Do people have knowledge of others' perceptions? *Journal of Personality and Social Psychology*, *111*(3), 341–366. https://doi.org/10.1037/pspi0000061

Speer, A. B., Christiansen, N. D., & Laginess, A. J. (2019). Social intelligence and interview accuracy: Individual differences in the ability to construct interviews and rate accurately. *International Journal of Selection and Assessment*, *27*(2), 104–128. https://doi.org/10.1111/ijsa.12237

Received June 18, 2021
Revision received January 4, 2022
Accepted January 5, 2022 ■