

## Impact of Reacting to the Past and Effect of Role on Student Attributes and Academic Outcomes

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Reacting to the Past (Reacting) is an active-learning pedagogy utilizing elaborate historical role-playing games. This study examined the effect of Reacting on student academic self-efficacy, perspective taking, engagement, and perceived learning, and considered whether these outcomes were impacted by the type of role a student assumed. Students from Reacting classes completed surveys prior to beginning and after completing the game. Students in similar non-Reacting classes completed surveys at approximately the same time. Students involved in Reacting reported more engagement, perceived learning, and self-efficacy than students enrolled in comparable courses. Reacting participants in roles that aligned them to a faction with a committed perspective reported more improvement in self-efficacy than participants in non-aligned roles. The article concludes with a consideration of pedagogical interventions to respond to the study's findings.

Educational games have long been part of the educational landscape (Carnes, 2014; Hertel & Millis, 2011; Van Ments, 1999). A growing body of research documents the positive impact of educational games and simulations on student learning. For example, Rector-Aranda and Raider-Roth (2015) found that a web-based simulation exercise improved a variety of skills including writing, critical thinking, perspective taking, historical empathy, and communication. Sung et al. (2017) compared a lesson taught with a game to a lesson taught in a lecture format and found that students had more motivation to learn and employed more deep learning strategies during the lesson with the game. Similarly, role-playing has been shown to aid learning in the affective, cognitive, and behavioral domains (Maier, 2002; Rao & Stupans, 2012). There is, however, considerably more work to be done to determine the efficacy of games and simulations in education (Halverson, R., 2012; Wouters et al., 2009).

The present study seeks to examine the impact of a specific type of role-playing simulation game, Reacting to the Past (Reacting). Developed by Mark Carnes at Barnard College in the 1990s, Reacting games have been adopted by faculty at over 350 colleges and universities. Reacting is a simulation-based active learning pedagogy that allows students to debate substantial intellectual issues and offers faculty members “elegantly designed games complete with primary evidence and supporting materials to engage students in one-day to, more typically, multi-week experiences” (Hagood et al., 2018, p. 2) of significant historical moments. Carnes (2014) suggested that the Reacting experience taps into the power of subversive play and competition in ways that engage and motivate students while giving them a liminal space to explore additional perspectives and grow from potential failures. Hagood et al. (2018) noted that Reacting engages students in active learning and has several traits in common with high-impact educational practices identified by the American Association of Colleges and Universities (Kuh, 2008). They also

suggested that Reacting, at its best, may tap into some aspects of Csíkszentmihályi's (1990) notion of flow. Similarly, although it usually unfolds outside the digital arena, the Reacting experience can create temporary dynamics that characterize the idea of participatory culture articulated by Jenkins et al. (2007; cf. Halverson, E.R., 2012; Halverson et al., 2016). Numerous articles describe Reacting pedagogy in practice, including Lazrus and McKay (2013) and Watson and Mokal (2018). Additional information and publications are available at [reacting.barnard.edu](http://reacting.barnard.edu).

Research on Reacting indicates that the game produces improvements in a variety of outcomes (McCormack & Petersen, 2018). Stroessner et al. (2009) reported increases in self-esteem, emotional empathy, and “belief in the malleability of human characteristics” (p. 614). Schult et al. (2018) showed that Reacting participants exhibited positive social effects (making friends, working in groups, joining class discussions) and made gains in academic self-efficacy, which has been related to academic performance and adjustment, including student commitment to remain in school (Chemers et al., 2001). Schult et al. (2018) also noted that, whereas both male and female students experienced an increase in self-efficacy, the gain was greater for female than for male students.

The evidence of positive academic outcomes for Reacting participants is considerable. Schult et al. (2018) found positive academic effects (writing papers, understanding readings, and doing well on exams) for Reacting participants. Students in a freshman seminar reported higher levels of critical thinking, teamwork, and the incorporation of diverse perspectives than students in similar courses at the same institution (Lightcap, 2009). While Bernstein et al. (2018) reported mixed results on the ability of Reacting to increase student retention, Reacting participants did demonstrate improved public speaking and teamwork skills (Bernstein et al., 2018). Higbee (2008) observed better attendance and more engagement outside of class. A majority of the students

in his Reacting classes reported, and he observed, increased participation in terms of asking questions and contributing to class discussion. Student writing was notably better for Reacting assignments than for “regular, not-in-character assignments” (p. 22). Gorton and Havercroft (2012) reported that using Reacting in political science classes led to improvements in student academic performance, participation and attendance, and evaluations of instructor teaching effectiveness. Likewise, Olwell and Stevens (2015) found gains in student learning, historical thinking, and freshman retention. In short, Reacting seems to have a positive impact on competencies included in the American Association of Colleges & Universities’ Essential Learning Outcomes and are highly valued by business executives and hiring managers (Hart Research Associates, 2018).

There are some indications that the pedagogy affects individuals differently. Stroessner et al. (2009) concluded that “...students who do not like receiving attention as a result of disagreement and students who are highly emotionally empathic tend to enjoy the pedagogy to a lesser degree” (p. 617). Fortunately, this did not correlate with lower course grades. Likewise, Orwell and Stevens (2015) noted that some students reported being less engaged with the reading and less likely to participate than in more traditional courses. They recommended further study to understand the learning dynamics at work and indicated a need to determine the types of students most likely to benefit from Reacting.

The present study was designed to replicate and extend findings on the relationship of participation in Reacting to personal attributes and academic outcomes. Personal attributes included self-efficacy and perspective taking. Academic outcomes included student engagement and perceived learning. To extend previous research on learning dynamics at work in Reacting, we explored how the type of role a student adopts during a Reacting experience may affect these outcomes.

There are two primary types of roles in Reacting games: factionalists and indeterminates. In order to foster active debate on significant issues, players are organized in factions (for instance, loyalists and patriots in *Patriots, loyalists, and revolution in New York City, 1775-76* (Offutt, 2015). Students in factionalist roles have clear goals they try to accomplish in collaboration with other members of their faction by meeting, strategizing, and discussing the positions and arguments of opposing faction(s). To give the debate meaning, maintain the possibility of a variety of outcomes, and give players a sense of agency, games have characters, referred to as indeterminates, who are open to persuasion on significant issues. “Factions have straightforward objectives, clear allies and positions on most of the issues

that players will encounter over the course of the game. Roles with a high degree of indeterminacy lack all of these supports. Consequently, indeterminacy is hard” (Proctor, 2018, p. 57). While the degree of indeterminacy varies by role and by game, the distinction between factionalists and indeterminates is a significant marker distinguishing roles in Reacting.

Some roles do not fit either of these categories. These figures are often major players in the game who help move the game forward and may have unique goals that keep them unaligned with specific factions. For instance, in *The needs of others: Human rights, international organizations and intervention in Rwanda, 1994* (McFall, 2018), Boutros Boutros-Ghali’s primary goals are to maintain public support for the United Nations and act as the primary steward of the UN to preserve its ability to function effectively. He needs to be perceived as a neutral arbiter of the issues before the United Nations, and, therefore, is not aligned with a faction. Students in these roles will have some experiences like those of factionalists (e.g., a particular perspective on an issue) and some like indeterminates (e.g., not aligned with a particular perspective). In this study these roles are designated as “others.”

A major goal of this study was to examine the extent to which the role a student plays in the game impacts their personal attributes (self-efficacy, perspective taking) and academic outcomes (perceived learning and engagement). Factionalists are likely to be more engaged than indeterminates with the game and with other students because their role requires collaboration with a readily apparent group. Furthermore, they may be more readily able to assume their roles because their positions on major issues are more clearly defined. Indeterminates, on the other hand, often do not have a group to collaborate with, are open to persuasion, and may have more difficulty assuming their roles. Thus, we would expect factionalists to report more change in personal attributes, more learning, and more engagement than their indeterminate counterparts.

## Hypotheses and Research Question

H1: Reacting students will show more positive outcomes than will non-Reacting students in terms of (a) an increase from pre-game to post-game personal attributes of self-efficacy and perspective taking, and (b) academic outcomes (i.e., learning outcomes, engagement, perceived learning and enjoyment).

H2: Factionalists will report more engagement with the class and with classmates, more learning, and greater increases in perspective taking and self-efficacy than indeterminates. We made no specific predictions about outcomes for students in other roles as those encompass a wide range of activities and responsibilities.

Q1: We examined how additional experience with Reacting would impact outcomes by considering the extent to which outcomes would differ for students who played only one game during the semester and those who played multiple games. We did not make a specific, directional hypothesis in this case because literature and rationale for such a hypothesis is not available at this point. Although Carnes (2014) cites anecdotal evidence that there are profound and long-term effects of Reacting, there is little empirical evidence to support this contention.

### Study Design

The primary design of the study was quasi-experimental, with gender, role (factionalist, indeterminate, other), and time (pre-, post-game, end of semester) as independent variables. Dependent variables included measures of personal attributes (self-efficacy, perspective taking) and academic outcomes (learning outcomes, engagement, perceived learning, perceived enjoyment). When examining differences between Reacting participants and the comparison group, we included only gender and time as independent variables as role was not differentiated in the comparison group. Although we had no specific predictions with regard to gender, we included it as an independent variable in the analyses because gender differences have been identified in some previous research (Schult et al., 2018).

### Method

#### Participants

Two hundred seventy-two undergraduate students who were enrolled in introductory courses at a medium-sized southeastern university completed a pre-RTTP survey, a post-RTTP survey, or both. Because our primary hypotheses address changes from before participation to after participation in Reacting, we analyzed only the data from the 201 students who completed both pre- and post-game surveys. Thirty-two of those students also completed the end-of-course survey that was administered in classes that used more than one game.

The courses were selected based on the instructors' choice to use Reacting and willingness to allow the investigators to administer surveys to their students. These courses consisted of two sections of the first-semester composition course, one section of the introductory course on pre-modern world history, one section of the introductory course on modern world history, two sections of the introductory course on United States history to 1877, and one world history seminar. To build a comparison group, we then approached faculty teaching the same or similar courses

that did not utilize a Reacting experience. These consisted of two sections of the first-semester composition course taught by different instructors and two sections of the introductory course on United States history from 1877. All four US history classes (Reacting and comparison) were taught by the same instructor. These courses used a variety of pedagogies, including lecture, discussion, and some active learning experiences.

Most participants were first-year students ( $n=100$ ); there were 37 second-year students, 39 juniors, 16 seniors, and 9 identified as "other." Most (53%) of the students identified as female, 43% as male; the remaining 4% identified as no gender identity ( $n=1$ ), other ( $n=1$ ), or preferred not to say ( $n=5$ ). To maintain anonymity, participants created a unique code that allowed the researchers to pair pre- and post-surveys.

The Reacting group consisted of 135 students. Thirty-five percent of the Reacting students participated in *Red clay, 1835: Cherokee removal and the meaning of sovereignty* (Weaver & Weaver, 2017); 25% participated in *Confucianism and the succession crisis of the Wanli emperor, 1587* (Gardner & Carnes, 2014); 19% in *Challenging the USDA food pyramid, 1991* (Henderson & Henderson, n.d.); 17% in *The threshold of democracy: Athens in 403 B.C.* (Ober et al., 2015); and 4% in *Defining a nation: India on the eve of independence, 1945* (Embree & Carnes, 2016). The comparison group consisted of 66 participants.

This study was reviewed and approved by the university Institutional Review Board.

#### Measures

##### *Self-Efficacy Scale*

The students' self-efficacy was measured with Schult et al.'s (2018) adaptation of the College Self Efficacy Inventory (CSEI; Barry & Finney, 2009; Solberg et al., 1993). Six items assessed student confidence in their ability to engage in tasks important for Reacting participation: making speeches, arguing a position, understanding different perspectives, identifying important points in readings, engaging in debates, and using evidence to support a point of view. The remaining items assessed academic and social self-efficacy (research a paper, ask a question in class, write papers, do well on exams, manage time, keep up with work, make friends, join a student group, work well in a group, join class discussion, ask a professor a question, get along with others). Students were asked to indicate their confidence in each ability on 5-point scales (1 = not at all; 5 = very).

This measure was administered at pre-game, post-game, and end of course. Cronbach alpha values for the present sample were .76 for the pre-game survey and .92

for the post-game survey. Due to the small sample size, internal consistency was not calculated for the end-of-course administration.

### *Perspective Taking*

The Interpersonal Reactivity Index (Davis, 1980) is composed of four subscales with seven items each. The present study used only the subscales for empathic concern and perspective taking. Items measuring perspective taking inquired about the ability of the respondent to take the perspective of another person (e.g., “I try to look at everybody’s side of a disagreement before I make a decision”). Items assessing empathic concern referred to feelings of sympathy for unfortunate others (e.g., “I often have tender, concerned feelings for people less fortunate than me”). Participants responded on 5-point scales (1 = does not describe me well; 5 = describes me very well).

This measure was administered in pre-game, post-game, and end-of-course sessions because we expected that participation in Reacting would increase perspective taking. As our hypotheses addressed only perspective taking, the empathic concern items were considered filler questions. The Cronbach’s alpha values for the present study were .69 for pretest and .71 for posttest perspective taking, and .79 for pretest and .76 for posttest empathic concern.

### *Academic Outcomes*

Intended Reacting learning outcomes were assessed (post-game and end-of-course only) with items used previously by Bledsoe et al. (2018). Students were asked to indicate the extent to which the Reacting experience improved their ability to communicate ideas effectively in writing, communicate ideas orally, work collaboratively with others, and weigh alternative points of view, which are significant learning outcomes associated with Reacting. Responses were indicated on 5-point scales (1 = not at all; 5 = very much).

Engagement was assessed in the post-game and end-of-course surveys with an adaptation of Handelsman et al.’s (2005) Student Course Engagement Questionnaire. Reacting participants were asked to indicate on 5-point scales (1 = almost never; 5 = almost always) the extent to which identified behaviors, thoughts, and feelings were characteristic of their experience with Reacting. Students in the comparison group answered the same questions with regard to their experience in their class over the same period of time. Thirteen items assessed aspects of cognitive and behavioral engagement. These included statements such as “I put forth effort for my role in the game/ for the class,” “I completed relevant readings,” and “I wanted to learn the material.” A final item

assessed overall engagement: “How engaged were you with the game/class?”

A version of the Assessment of Student Perceptions of Engagement and Learning (ASPEL; Richardson et al., 2015) measured responses to five components of the Reacting experience: argumentative essay, oral presentation, debate, reflection essay, and the game as a whole. Reacting participants reported how much they enjoyed and how much they learned from each component on 5-point scales (1 = not at all; 5 = very much).

### *Background Questionnaire*

Both versions of the post-game survey included questions about gender, year in college, and previous experience with Reacting. Reacting participants were also presented a list of roles that matched each classification and were asked to indicate the appropriate classification of their role on the survey.

### **Procedure**

Instructors were asked at the beginning of each of two semesters if they would allow the investigators to recruit student participants to complete the surveys during class time. No more than ten days prior to and after the Reacting experience, students were invited to participate in the study by an investigator during a class meeting. Comparison groups completed surveys during the same week as the comparable Reacting section. Participants’ informed consent was assumed by participation and submission of completed surveys. In classes with more than one Reacting experience during the semester, an additional survey was administered after they had completed all of the games for the course, approximately two weeks before the end of the semester. That questionnaire included assessments of learning outcomes, engagement, and the ASPEL.

## **Results**

### **Self-Efficacy**

We conducted two different analyses in order to answer our questions. One analysis compared Reacting participant responses to those of the control group. A different analysis was required to examine the effect of Role on Reacting participants. Thus, we conducted a 2 (Gender) x 2 (Time) analysis of variance with repeated measures on the last factor for average self-efficacy scores of students who did not participate in Reacting (comparison group) in order to determine whether those students’ self-efficacy changed. We conducted a 3 (Role) x 2 (Gender) x 2 (Time) analysis of variance on average self-efficacy scores of Reacting participants to determine

if students in different roles experienced different amounts of change in self-efficacy.

The self-efficacy scores of students in the comparison group on the post-game survey ( $M = 3.82$ ,  $SD = .57$ ,  $CI: 3.67, 3.97$ ),  $F(1, 61) = 3.04$ ,  $p = .09$ ,  $\eta_p^2 = .05$ ) were not significantly different from their initial scores ( $(M = 3.70$ ,  $SD = .58$ ,  $95\% CI: 3.55, 3.84)$ ). However, the relatively strong main effect of time,  $F(1, 126) = 35.07$ ,  $p < .001$ ,  $\eta_p^2 = .22$ , for Reacting students revealed that they reported higher self-efficacy after participating in the game ( $M = 4.04$ ,  $SD = .61$ ,  $95\% CI: 3.90, 4.18$ ) than before ( $M = 3.75$ ,  $SD = .54$ ,  $CI: 3.63, 3.87$ ).

The analysis of Reacting participant responses also revealed the predicted significant interaction between time and role,  $F(2, 126) = 4.46$ ,  $p = .01$ ,  $\eta_p^2 = .07$ , indicating that the increase in self-efficacy was only significant for students in factionalist and other roles; there was no increase for students in indeterminate roles. See Table 1 for descriptive statistics and analysis of

simple effects of time for each role. There were no other significant main or interaction effects on overall self-efficacy.

### Perspective Taking

To discover changes in perspective taking for the comparison group, we conducted a 2 (Gender) x 2 (Time) analysis of variance on average perspective-taking scores. This analysis revealed no significant main or interaction effects of gender or time.

To test the hypothesis that perspective-taking would increase over the course of a Reacting experience, we conducted a 3 (Role) x 2 (Gender) x 2 (Time) analysis of variance on perspective-taking. This analysis revealed no significant main or interaction effects. Although we made no predictions for Empathic Concern (i.e., those items were considered filler), a 2 (Gender) x 3 (Role) x 2 (Time) analysis of variance on average scores revealed no significant main or interaction effects.

**Table 1**

*Descriptive Statistics and Simple Effects for time x Role Interaction on Self-Efficacy*

	Factionalist			Indeterminate			Other		
	<i>M</i>	<i>SD</i>	<i>95% CI</i>	<i>M</i>	<i>SD</i>	<i>95% CI</i>	<i>M</i>	<i>SD</i>	<i>95% CI</i>
Pre-Reacting	3.76	.54	[3.64, 3.87]	3.90	.57	[3.72, 4.09]	3.60	.41	[3.32, 3.89]
Post-Reacting	4.02	.60	[3.89, 4.16]	4.00	.70	[3.79, 4.22]	4.11	.46	[3.78, 4.44]
Simple Effect of Time	$F(1, 84) = 38.43, p < .001, \eta_p^2 = .31$			$F(1, 32) = 1.27, p = .27, \eta_p^2 = .04$			$F(1, 13) = 17.78, p = .001, \eta_p^2 = .58$		

### Academic Outcomes

#### Learning Outcomes

Learning outcomes were assessed for Reacting and non-Reacting students in the post-game surveys only. Thus, we can compare perceived improvement in outcomes for those two groups, and we can consider the effects of gender and role on Reacting participants.

**Reacting vs. Comparison.** The 2 (Group: Reacting, comparison) x 2 (Gender) x 4 (Outcome) analysis of variance on students' perceptions of learning outcomes with repeated measures on the last factor revealed significant main effects of group,  $F(1, 188) = 10.52$ ,  $p = .001$ ,  $\eta_p^2 = .05$  (Wilks' Lambda), and outcome,  $F(3, 186) = 15.96$ ,  $p < .0001$ ,  $\eta_p^2 = .21$  (Wilks' Lambda), a significant interaction between group and outcome,  $F(3, 186) = 8.88$ ,  $p = .0001$ ,  $\eta_p^2 = .13$  (Wilks' Lambda), and a significant three-way interaction among group, outcome, and gender,  $F(3, 186) = 4.00$ ,  $p = .009$ ,  $\eta_p^2 = .06$  (Wilks' Lambda). The two main effects and the two-way interaction are superseded by the significant three-way interaction, so we conducted analysis of simple

interaction (Group x Outcome) effects for each gender. See Table 2 for descriptive statistics and results of simple interaction and simple main effects.

Female Reacting participants reported that the experience improved their ability to work collaboratively, communicate in writing, and weigh alternatives more than females in the comparison group. Male Reacting participants reported only that the game improved their ability to work collaboratively more than males in the comparison group.

**Effect of Role.** The 2 (Gender) x 3 (Role) x 4 (Outcome) analysis of variance on reports of the extent to which Reacting students perceived that the game improved learning outcomes revealed a significant effect of outcome,  $F(3, 23) = 6.27$ ,  $p = .001$ ,  $\eta_p^2 = .13$ , and a significant Gender x Role x Outcome interaction,  $F(6, 246) = 2.30$ ,  $p = .04$ ,  $\eta_p^2 = .05$  (Wilks' Lambda). The main effect of outcome is superseded by the three-way interaction, so we analyzed simple interaction and main effects. These analyses revealed a significant Outcome x Role effect for males only,  $F(6, 122) = 2.35$ ,  $p = .04$ ,  $\eta_p^2 = .10$ ; male indeterminates reported that Reacting

**Table 2***M (SD), [95% CIs] and Results of Analysis of Group and Gender Effects for Learning Outcomes*

	Male		Female	
	Reacting <i>n</i> = 66	Comparison <i>n</i> = 21	Reacting <i>n</i> = 65	Comparison <i>n</i> = 40
Written Communication	3.92 (.90) [3.67, 4.18]	3.52 (1.12) [3.07, 3.98]	3.69 (1.04) [3.43, 3.95]	2.80 (1.28) [2.47, 3.13]
Simple main effect of group	$F(1, 85) = 2.79, ns$		$F(1, 105) = 16.88, p = .0001$	
Oral Communication	3.99 (.97) [3.73, 4.24]	3.86 (.85) [3.41, 4.30]	3.69 (1.17) [3.44, 3.95]	3.70 (.99) [3.38, 4.02]
Simple main effect of group	$F(1, 85) = 2.92, ns$		$F(1, 104) = .023, ns$	
Work Collaboratively	4.06 (.94) [3.80, 4.32]	3.14 (.96) [2.68, 3.61]	3.86 (1.07) [3.60, 4.12]	3.03 (1.31) [2.69, 3.36]
Simple main effect of group	$F(1, 85) = 14.94, p = .0001$		$F(1, 104) = 13.30, p = .0001$	
Weigh Alternative Points of View	4.05 (1.03) [3.80, 4.29]	4.19 (.68) [3.76, 4.62]	4.17 (.99) [3.92, 4.42]	3.68 (1.12) [3.36, 3.99]
Simple main effect of group	$F(1, 85) = .37, ns$		$F(1, 105) = 6.29, p < .02$	
Simple Group x Outcome effect	$F(3, 83) = 7.37, p = .0001, \eta_p^2 = .21$		$F(3, 83) = 7.06, p = .0001, \eta_p^2 = .17$	

**Table 3***M (SD), and [95% CIs] for Gender by Role Interaction for Perceived Improvement in Learning Outcomes Among Reacting Participants*

	Male <sup>i</sup>			Female		
	Faction <i>n</i> = 45	Indeterm <i>n</i> = 15	Other <i>n</i> = 6	Faction <sup>iii</sup> <i>n</i> = 39	Indetermin <i>n</i> = 18	Other <i>n</i> = 8
Communicate in Writing	3.87 (.92) [3.58, 4.16]	4.07 (.88) [3.57, 4.57]	4.00 (.89) [3.21, 4.79]	3.76 (1.01) [3.45, 4.08]	3.44 (1.24) [2.98, 3.90]	3.88 (.64) [3.19, 4.56]
Communicate Orally	3.89 (.98) [3.57, 4.20]	4.27 (.96) [3.72, 4.81]	4.00 (.89) [3.14, 4.86]	3.85 (.96) [3.51, 4.19]	3.88 (1.60) [2.78, 3.78]	3.88 (.83) [3.13, 4.62]
Collaboration	4.04 (.98) [3.74, 4.34]	4.00 (.93) [3.48, 4.52]	4.33 (.82) [3.51, 5.15]	3.87 (.92) [3.55, 4.19]	3.67 (.46) [3.19, 4.14]	4.25 (.71) [3.54, 4.96]
Weigh Alternatives <sup>ii</sup>	3.84 <sub>a</sub> (1.09) [3.56, 4.13]	4.67 <sub>b</sub> (.72) [4.17, 5.16]	4.00 <sub>a</sub> (.63) [3.21, 4.79]	4.18 (.91) [3.87, 4.49]	3.83 (1.20) 3.38, 4.29	4.87 (.35) [4.19, 5.56]

Note: Means sharing a common subscript are not significantly different at  $\alpha = .05$ .

- i. Outcome x Role effect for males:  $F(6, 122) = 2.35, p = .04, \eta_p^2 = .10$
- ii. Role effect for weigh alternatives for males:  $F(2, 65) = 3.92, p = .03, \eta_p^2 = .11$ ; effect not significant for other outcomes
- iii. Outcome x Gender interaction for factionalists,  $F(3, 80) = 3.23, p = .03, \eta_p^2 = .11$ . Effect of outcome for female factionalists:  $F(3, 36) = 3.99, p = .02, \eta_p^2 = .25$ ; effect not significant for male factionalists

improved their ability to weigh alternative points of view more than their factionalist or other counterparts. The significant Outcome  $\times$  Gender interaction for factionalists,  $F(3, 80) = 3.23, p = .03, \eta_p^2 = .11$ , revealed that female factionalists reported that Reacting improved their ability to weigh alternative points of view more than the game improved any of the other outcomes. Table 3 presents descriptive statistics and results of simple effects analyses.

### Engagement

Students reported in the post-Reacting survey the extent to which they were behaviorally and cognitively engaged in the game. As revealed in Table 4, Reacting students generally reported relatively high levels of engagement. All of the responses, with the exception of their report of helping other students, were well above the midpoint of the scale. This generally positive evaluation was related to neither gender nor role in the game. The 2 (Gender)  $\times$  3 (Role) multivariate analysis of

variance on engagement items revealed no significant main or interaction effects.

The comparison group responded to a similar measure of engagement, allowing us to determine whether Reacting students reported more engagement in the game than non-Reacting students reported engagement in their class over the same period of time. The 2 (Gender)  $\times$  2 (Group: Reacting, comparison) multivariate analysis of variance revealed that the two groups did report different levels of engagement, multivariate  $F(10, 177) = 5.65, p < .0001, \eta_p^2 = .24$  (Wilks Lambda; see Table 4 for descriptive statistics and results of univariate analyses).

Univariate analyses revealed that Reacting participants reported that they were more likely to come to class and more likely to help others in the class than non-Reacting participants. However, Reacting students reported that they understood expectations for the game less than students in the comparison classes reported that they understood expectations for the class. There were no main or interaction effects of gender on engagement.

**Table 4**

*Means, Standard Deviations, 95% Confidence Intervals, And Univariate Analyses for Engagement Items*

	Reacting Participants			Non-Reacting Participants			$F(1,186)$	$p$	$\eta_p^2$
	$M$	$SD$	95% CI	$M$	$SD$	95% CI			
I enjoyed the game/class.	4.12	.93	[3.96, 4.29]	4.10	1.01	[3.85, 4.36]	.02	.89	.00
I put forth effort for my role in the game/class.	4.20	.84	[4.06, 4.36]	4.00	.85	[3.77, 4.23]	2.38	.13	.01
I completed relevant readings	4.03	.93	[3.87, 4.20]	3.90	.94	[3.65, 4.16]	.71	.40	.00
I listened carefully in class	4.47	.65	[4.36, 4.59]	4.49	.67	[4.30, 4.65]	.00	.97	.00
I came to class.	4.70	.59	[4.58, 4.81]	4.40	.74	[4.30, 4.64]	4.75	.03	.03
I thought about the game/class between class meetings	4.11	.97	[3.93, 4.28]	3.77	1.07	[3.55, 4.08]	3.31	.07	.02
I really wanted to learn the material	4.08	.95	[3.92, 4.24]	3.91	.91	[3.66, 4.16]	1.23	.27	.01
I felt as if I understood expectations for the game/class.	3.61	1.12	[3.43, 3.80]	4.40	.95	[4.12, 4.68]	20.86	.00	.10
I helped other students with this unit/course.	3.20	1.26	[2.98, 3.42]	2.64	1.29	[2.30, 2.97]	7.74	.00	.04
How engaged were you with the game/class?	4.00	.93	[3.84, 4.16]	3.94	.89	[3.69, 4.18]	.11	.66	.00

### ASPEL – Learning and Enjoyment

Reacting students were asked to report the extent to which components of the experience (argumentative essay, oral presentation, debate, reflective essay) and the game as a whole helped them learn and were enjoyable.

The 2 (Gender) x 3 (Role) x 5 (Component) analysis of students' reports of their learning revealed a significant effect of Component,  $F(4, 114) = 5.48, p = .001, \eta_p^2 = .16$  (Wilks' Lambda), but no main or interaction effects of gender or role. Students reported learning more from the game as a whole ( $M = 4.20, SD = .90, 95\% \text{ CI: } 4.01, 4.43$ ) than from debates ( $M = 3.99, SD = 1.09, \text{ CI: } 3.85, 4.36$ ), from oral presentations ( $M = 3.89, SD = 1.14, \text{ CI: } 3.69, 4.23$ ), from argumentative essays ( $M = 3.88, SD = 1.00, \text{ CI: } 3.64, 4.12$ ), and from reflective essays ( $M = 3.66, SD = 1.05, \text{ CI: } 3.53, 4.03$ ). Ratings of debates, oral presentations, and

argumentative essays did not differ from one another; however, students reported that reflective essays contributed less to their learning than did any other component of the course.

The 2 (Gender) x 3 (Role) x 5 (Component) analysis of students' reports of how much they enjoyed the various aspects of the experience revealed a main effect of gender,  $F(1, 120) = 4.58, p = .04, \eta_p^2 = .04$ ; male students reported more enjoyment overall ( $M = 4.01, SD = 1.08, 95\% \text{ CI: } 3.74, 4.27$ ) than female students reported ( $M = 3.62, SD = .96, 95\% \text{ CI: } 3.38, 3.86$ ). There was also a significant effect of component, multivariate  $F(4, 117) = 20.19, p < .0001, \eta_p^2 = .41$ . Students reported enjoying the game as a whole and debates more than any other component of the game. See Table 5 for relevant descriptive statistics. There were no main or interaction effects of role.

**Table 5**  
*Descriptive Statistics for Enjoyment Components*

	<i>M</i>	<i>SD</i>	<i>95% Confidence Interval</i>
Game as a Whole	4.31 <sub>a</sub>	.88	[4.11, 4.51]
Debates	4.27 <sub>a</sub>	1.06	[4.04, 4.52]
Oral Presentations	3.61 <sub>b</sub>	1.29	[3.32, 3.90]
Reflective Essay	3.44 <sub>b</sub>	1.07	[3.20, 3.68]
Argumentative Essay	3.42 <sub>b</sub>	1.13	[3.17, 3.68]

Note: Means sharing a common subscript are not significantly different at  $\alpha = .05$ .

### Effect of Experience with Reacting

We attempted to determine if additional Reacting experience would lead to better outcomes by administering an additional survey at the end of the semester in courses that included more than one Reacting game during the semester.

We conducted a 3 (Role) x 3 (Time: pre, post, end-of-course) analysis of variance with repeated measures on time in order to examine changes in average self-efficacy and perspective-taking from before-Reacting to after first game to end of semester. The sample size for this aspect of our study precluded an examination the effect of gender and role in the same analyses. For those few students ( $n=32$ ), neither the main effects of time or role nor the time by role interaction was significant for either dependent variable. Time: self-efficacy  $F(2, 58) = 2.65, p = .08, \eta_p^2 = .08$ ; perspective taking,  $F(2, 58) = 1.41, p = .25, \eta_p^2 = .05$ . Time x Role: self-efficacy,  $F(4, 58) = .42, p = .80, \eta_p^2 = .03$ ; perspective taking,  $F(4, 58) = 1.25, p = .30, \eta_p^2 = .08$ .

The students who participated in multiple games during the semester evaluated learning outcomes at the end of the course as well as at the end of the game. A 3 (Role) x 2 (Time: postgame, end-of-course) x 4

(Outcome) analysis of variance revealed a significant effect of Time,  $F(1, 28) = 4.24, p = .05, \eta_p^2 = .13$  (Wilks' Lambda), and a significant Time x Outcome interaction,  $F(3, 26) = 3.29, p = .04, \eta_p^2 = .28$  (Wilks' Lambda). There were no significant main or interaction effects of role.

Students were more positive about the extent to which the experience improved their oral communication ( $M$ s and  $SD$ s = 3.87 (1.09) and 4.36 (.84),  $t(30) = 2.62, p = .01$ ), and their ability to collaborate with others ( $M$ s and  $SD$ s = 3.74 (1.00) and 4.48 (.68)),  $t(30) = 4.14, p < .0001$ ) at the end of the course than at the end of the game. The changes for perceived improvements in written communication ( $M$ s and  $SD$ s = 3.97 (.87) and 4.23 (.73)) and weighing alternative points of view ( $M$ s and  $SD$ s = 4.16 (1.13) and 4.42 (.68)) were not significant,  $t$ s (30) = 1.96 and 1.39,  $p$ s > .06.

### Discussion

Students generally evaluated their experience with Reacting positively, as evidenced by the positive reports of learning and engagement. They also reported that they learned from and enjoyed the game as a whole; that they learned more from debates, oral presentations, and



argumentative essays than from reflective essays; and that they enjoyed debates more than other components of the game.

Overall, the findings provide support for most of our hypotheses. Reacting students' self-efficacy improved over the course of the game; they reported an improvement in learning outcomes; and they were more engaged than students in the comparison group. The role students played during the game influenced self-efficacy and perception of improvement in learning outcomes. Prior experience affected perceived improvement in learning outcomes; Reacting students noted more improvement in learning outcomes at the end of the course than immediately after the game.

### **How do Reacting Experiences Differ from Other Classroom Experiences?**

We compared the experience of Reacting participants to non-Reacting participants in similar classes in four areas: self-efficacy, perspective taking, learning outcomes, and engagement. In most cases, our findings supported our hypotheses. Three of the four measures indicated positive differences for Reacting participants.

Self-efficacy and perspective taking were examined in this study because we wanted to explore, and in some cases replicate, the effect of Reacting on personal attributes of students. This exploration considers the possibility that the educational experience has an effect beyond academic outcomes, that the experience can modify a student's self-perception and interpersonal interactions. As predicted, Reacting students, but not comparison group students, showed significant improvement in self-efficacy, demonstrating a positive effect of Reacting pedagogy on a personal attribute. This lends additional weight to the claim that the Reacting experience can produce increases in student self-efficacy and supports the findings of Stroessner et al. (2009) and Schult et al. (2018).

We did not, however, find evidence of Reacting effects on perspective taking, the cognitive component of empathy (Davis, 1980). We reasoned that the debate and discussion that are critical to Reacting pedagogy would allow students to practice and improve their ability to take the perspective of others. Of course, that reasoning suggests that students would recognize the need to understand the perspective of others in order to be successful in winning arguments. Stroessner et al. (2009) did find differences between Reacting and non-Reacting participants in terms of empathy; however, that study assessed emotional empathy, the ability to vicariously experience others' emotional experience. Perhaps, consistent with arguments by Carnes (2014) about the impact of Reacting on compassion and morality, these games are more likely to enhance

students' emotional than cognitive connections to others. Although we did not find changes in empathic concern, the effect of Reacting on personal attributes associated with interpersonal connections and emotional experience is worthy of additional investigation.

Reacting participants perceived more improvement in learning outcomes than did comparison group participants. However, this overall effect was moderated by gender. Female Reacting students reported more improvement in collaboration, written communication, and ability to weigh alternative points of view than did comparison group females. Significant differences for male participants' perceptions of improvement occurred only for collaboration. The consistent perception of improvement in collaboration is especially notable because this is a general goal of Reacting pedagogy (Carnes, 2014), and collaboration is a skill that employers seek (Hart Research Associates, 2018). This finding is also consistent with previous research that has noted improvement in teamwork skills for Reacting students (Bernstein et al., 2018; Lightcap, 2009).

Reacting students also reported more engagement than students in the comparison group. Interpretation of this finding is challenging because Reacting students were responding with regard to their experience during gameplay, and comparison group students were responding with regard to their overall class experience during the same period of time. The class experience is likely to have varied considerably in the comparison classes and may have involved lecture, discussion, or active learning pedagogies. So in some senses, this is not a clean comparison since we are contrasting a particular pedagogy to a variety of other pedagogies. Nevertheless, Reacting students reported more engagement, especially with regard to attendance and to helping others than did students who were reporting about their class. These findings are consistent with previous research that has noted the significance of Reacting in contributing to student engagement and collaboration (Bernstein et al., 2018; Gorton & Havercroft, 2012; Higbee, 2008).

However, there is one potentially important finding regarding engagement that has not been reported in previous research: Reacting students reported *less* understanding of expectations than the students in the comparison group. This finding is not unanticipated; Reacting pedagogy requires that instructors step away as a locus of control in the classroom. Students are faced with tasks and a context with which they have had limited experience, and each student has unique assignments. The loss of regimen and uniformity of tasks often generates a sense of disorientation in students, especially in the initial week or two of the experience. Despite this, the Reacting

students still reported more engagement overall. One could legitimately explore whether Reacting succeeds despite, or at least in part because of, this sense of disorientation.

### Effects of Role

The effects of role on student experience were relatively modest, and fewer than we had anticipated. Role had very little impact on academic outcomes, only an unpredicted and not easily explained interaction whereby female factionalists and male indeterminates reported more improvement in weighing alternative points of view.

Nevertheless, role did relate to change in the personal attribute of self-efficacy. Reacting students in factionalist and other roles were more self-efficacious after the game than before; those in indeterminate roles did not change. We predicted the outcome for factionalists; we did not make the prediction for students in other roles. However, most of the others in the Reacting modules used in this study were important figures historically who took clear positions during the game.

Faculty members who use Reacting pedagogy would do well to consider how they assign roles in view of potential differences in outcomes for students depending on the role they play in the game. Some in the Reacting community assign students who played indeterminates in their first Reacting experience to play factionalists in a subsequent game. This practice might mitigate the effects of role identified in this study.

### Effects of Additional Reacting Experience

We found that students who played multiple games in one class reported that they perceived more improvement in oral communication and collaboration at the end of the course (i.e., after playing at least one more game) than at the end of the first game. The question of whether this was due to increased practice or to just a recognition that increased over time is unclear and warrants further study.

Our findings regarding personal attributes are consistent with those of Schult et al. (2018) who found no significant effect of participating in multiple Reacting modules on self-efficacy. Further studies examining the effects of additional Reacting experience on extending or solidifying student efficacy and learning would be helpful, as would additional studies that take up the suggestion by McCormack and Peterson (2018) that the full impact of Reacting may not appear until after the course has ended.

### Limitations and Suggestions for Further Work

Our data came from multiple courses, multiple instructors, multiple levels, and multiple games at one institution, which has both advantages and disadvantages for interpretation and generalizability. The consistency of findings across the variety of contexts suggests that we may safely generalize findings across student experience in different games and courses. However, this variety also contributed to error variance, which may account for lack of support for some of our predictions. Studies with more control of these factors are needed to fully understand how Reacting impacts students.

On the other hand, that the data come from one institution and thus to a particular group of students limits the advisability of generalizing findings to different kinds of students at different institutions. Although our university has a relatively diverse student population, as a public research university, the students are likely to differ from students at other types of institutions, such as small liberal arts colleges. Studies that examine how students of different backgrounds and experiences respond to Reacting are called for.

For the most part, instructors of the Reacting and comparison classes were different individuals, thereby introducing a potential confound. One might ask whether the effects could be attributed to instructor rather than to the Reacting pedagogy. There is not a definitive answer to this question; however, the attempt to collect data from similar classes with similar learning outcomes was our attempt to make the two groups as similar as possible. Because faculty members who engage students with Reacting pedagogy at our institution use the pedagogy consistently, we were not able to make comparisons between the same classes taught with Reacting and non-Reacting pedagogies that are taught by the same instructor.

Selection bias might explain role differences. Instructors might select students for certain roles (or students may self-select into those roles) based on personal inclinations, attitudes, or personality factors. For example, faculty members on the “Reacting Faculty Lounge” Facebook page and some colleagues at our institution survey students about a variety of issues before assigning roles (Blum, 2018). This could be an area for further research.

This study focused primarily on student perception of their experience shortly after Reacting participation. Stroessner et al. (2009) and Schult et al. (2018) collected data at the beginning and the end of the semesters (rather than immediately before and after a game), while others (e.g., Bernstein et al., 2018) gathered information in surveys after students

had completed the courses. As noted above, teasing out when and how long effects are measureable could be an interesting direction for future research. Carnes (2014) argues that the Reacting experience is likely to produce profound and long-term effects on students. This claim deserves further empirical study.

### Conclusion

In sum, this study supports other positive findings on the impact of Reacting on personal and academic outcomes. Students, especially those in factionalist and other roles, report more confidence at the end of the game than at the beginning. Multiple findings in the study point to the effect of Reacting on interpersonal interactions in terms of collaborating and helping others. These positive effects suggest that investment of time on the part of instructors to learn this pedagogy may be worthwhile for their students. Although there were modest effects of role on self-efficacy, role did not affect student perceptions of their learning or their reports of engagement.

The role effects, although modest, suggest that there may be something going on that deserves attention: the indeterminates do not get the same bump in self-efficacy as other Reacting participants. Instructors who use Reacting modules must remain attentive to the dynamics between role (type) and individual student. The findings also seem to indicate that instructors and game designers who want to improve the experience for students in indeterminate roles may want to focus on activities that bolster the students' participation in debates and collaborative work. Suggestions gathered from responses to a post on the Reacting Faculty Lounge on Facebook indicate that both game designers and instructors have considered the difficulties encountered by some students with indeterminate roles already. The suggestions included that game designers give indeterminates significant administrative or otherwise meaningful activities that encourage them to seek allies. Others suggested reducing the number of true indeterminates or shifting the burden of indeterminacy around to more players, such that a role may be indeterminate on certain issues but have positions that align them with a faction on other issues. Suggestions for instructors included putting stronger, more confident and outgoing players in indeterminate roles and helping them recognize the significance of their roles and commonalities they have with other players.

The differences between the Reacting participants as a whole and the comparison group were significant. In this respect our findings contribute to the literature that has already documented Reacting's merit as a pedagogy that engages students and promotes significant learning experiences. Above all, Reacting is an experience that students value, especially in terms of

perceived learning, enjoyment, and engagement. The conclusion for the community creating and using this pedagogy is that in terms of academic self-efficacy, there may be something lacking in the experience of students who adopt roles as indeterminates. We hope that our study will spur additional studies into the internal dynamics that contribute to Reacting's effectiveness and the effect that external factors have on its impact.

### References

- Barry, C. L., & Finney, S. J. (2009). Can we feel confident in how we measure college confidence?: A psychometric investigation of the College Self-Efficacy Inventory. *Measurement and Evaluation in Counseling and Development, 42*, 197-222. <https://doi.org/10.1177/0748175609344095>
- Bernstein, J. L., Strasma, M. G., Olwell, R., & Higbee, M. D. (2018). What happens after Reacting?: A follow-up study of past RTTP participants at a public regional university. In C. E. Watson & T. C. Hagood (Eds.), *Playing to learn with Reacting to the Past: Research on high impact, active learning practices* (pp. 141-157). Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-61747-3>
- Bledsoe, R. S., Maynard, L. A., & Richardson, D. S. (2018). The crowded streets of Paris: Using RTTP in less-than-ideal situations. In C. E. Watson & T. C. Hagood (Eds.), *Playing to learn with Reacting to the Past: Research on high impact, active learning practices* (pp. 41-73). Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-61747-3>
- Blum, S. (2018, March 6). *I have been giving my students a survey before assigning roles....* Facebook. Reacting Faculty Lounge. <https://www.facebook.com/groups/reactingfacultyounge/?/10155150589516574>
- Carnes, M. C. (2014). *Minds on fire: How role-immersion games transform college*. Harvard University Press.
- Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first-year college student performance and adjustment. *Journal of Educational Psychology, 93*, 55-64. <https://doi.org/10.1037/0022-0663.93.1.55>
- Csikszentmihályi, M. (1990). *Flow: The psychology of optimal experience*. Harper and Row.
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10*, 85.
- Embree, A. T., & Carnes, M. C. (2016). *Defining a nation: India on the eve of independence, 1945*. Norton.

- Gardner D., & Carnes, M. C. (2014). *Confucianism and the succession crisis of the Wanli emperor, 1587* (3<sup>rd</sup> ed.) Norton.
- Gorton, W., & Havercroft, J. (2012). Using historical simulations to teach political theory. *Journal of Political Science Education, 8*(1), 50-68. <https://doi.org/10.1080/15512169.2012.641399>
- Hagood, T. C., Watson, C. E., & Williams, B. M. (2018). Reacting to the Past: An introduction to its scholarly foundation. In C. E. Watson & T. C. Hagood (Eds.), *Playing to learn with Reacting to the Past: Research on high impact, active learning practices* (pp. 1-16). Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-61747-3>
- Halverson, E.R. (2012). Participatory media spaces: A design perspective on learning with media and technology in the twenty-first century. In C. Steinkuehler, K. Squire, & S. Barab (Eds.). *Games, learning, and society: Learning and meaning in the digital age* (pp. 244-268). Cambridge University Press.
- Halverson, R. (2012). Games and the future of education research. In C. Steinkuehler, K. Squire, & S. Barab. (Eds.). *Games, learning, and society: Learning and meaning in the digital age* (pp. 433-446). Cambridge University Press.
- Halverson, R., Kallio, J., Hackett, S., & Halverson, E. (2016). Participatory culture as a model for how new media technologies can change public schools (WCER Working Paper No. 2016-7). [https://wcer.wisc.edu/docs/working-papers/Working\\_Paper\\_No\\_2016\\_7.pdf](https://wcer.wisc.edu/docs/working-papers/Working_Paper_No_2016_7.pdf)
- Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *Journal of Educational Research, 98*, 184-192. <https://doi.org/10.3200/JOER.98.3.184-192>
- Hart Research Associates. (2018, July). *Fulfilling the American dream: Liberal education and the future of work*. Association of American College & Universities. <https://www.aacu.org/sites/default/files/files/LEAP/2018EmployerResearchReport.pdf>
- Henderson, S., & Henderson, D. (n.d.). *Food fight: Challenging the USDA food pyramid, 1991*. Reacting Consortium Library. <http://reactingconsortiumlibrary.org/>
- Hertel, J. P., & Millis, B. (2011). *Using simulations to promote learning in higher education: An introduction*. Stylus.
- Higbee, M. D. (2008). How Reacting to the Past games “made me want to come to class and learn”: An assessment of the Reacting pedagogy. In J. L. Bernstein (Ed.), *Making learning visible: The scholarship of learning at EMU*. Eastern Michigan University.
- Jenkins, H., Purushotma, R., Clinton, K., Weigel, M., & Robison, A. (2006). Confronting the challenges of participatory culture: Media education for the 21st century. Building the field of digital media and learning. <http://www.newmedialiteracies.org/wp-content/uploads/pdfs/NMLWhitePaper.pdf>
- Kuh, G. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Association of American Colleges and Universities.
- Lazrus, P. K., & McKay, G. K. (2013). The Reacting to the Past pedagogy and engaging the first year student. In J. E. Groccia & L. Cruz (Eds.), *To improve the academy: Resources for faculty, instructional, and organizational development* (vol. 32, pp. 351-362). POD (Professional and Organizational Development network). Jossey Bass. <https://doi.org/10.1002/j.2334-4822.2013.tb00715.x>
- Lightcap, T. (2009). Creating political order: Maintaining student engagement through Reacting to the Past. *PS: Political Science and Politics, 42*, 175-179. <http://dx.doi.org/10.1017/S1049096509090167>
- Maier, H. W. (January 2002). Role playing: Structures and educational objectives. *CYC-online, 36*. <http://www.cyc-net.org/cyc-online/cycol-0102-roleplay.html>.
- McCormack, D., & Petersen, K. K. (2018). Impact and perception: Reacting to the Past at Middle Tennessee State University. In C. E. Watson & T. C. Hagood (Eds.), *Playing to learn with Reacting to the Past: Research on high impact, active learning practices* (pp. 17-39). Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-61747-3>
- McFall, K. (2018). *The needs of others: Human rights, international organizations and intervention in Rwanda, 1994*. Norton.
- Ober, J., Norman, N. J., & Carnes, M. C. (2015). *The threshold of democracy: Athens in 403 B.C.* (4<sup>th</sup> ed.). Norton.
- Offutt, B. (2015). *Patriots, loyalists, and revolution in New York City, 1775-1776* (2<sup>nd</sup> Ed). Norton.
- Olwell, R., & Stevens, A. (2015). “I had to double check my thoughts”: How the Reacting to the Past methodology impacts first-year college student engagement, retention, and historical thinking. *The History Teacher, 48*, 561-572.
- Proctor, N. W. (2018). *Reacting to the Past: Game designer's handbook* (4<sup>th</sup> ed.). CreateSpace Independent Publishing Platform.
- Rao, D., & Stupans, I. (2012). Exploring the potential of role play in higher education: Development of a typology and teacher guidelines. *Innovations in Education and Teaching International, 49*(4), 427-

436.  
<https://doi.org/10.1080/14703297.2012.728879>
- Rector-Aranda, A., & Raider-Roth, M. (2015). "I finally felt like I had power": Student agency and voice in an online and classroom-based role-play simulation. *Research in Learning Technology*, 23, 1-13. <https://doi.org/10.3402/rlt.v23.25569>
- Richardson, D. S., Datta, T., Hammock, G. S., & Casaletto, K. (2015, April). *Assessing students' perceptions of learning and engagement*. Presentation at University System of Georgia Teaching and Learning Conference, Athens, GA.
- Schult, C. A., Lindinsky, A., Zwicker, L. F., & Dunn, E. E. (2018). Strengthening students' self-efficacy through Reacting to the Past. In C. E. Watson & T. C. Hagood (Eds.), *Playing to learn with Reacting to the Past: Research on high impact, active learning practices* (pp. 75-89). Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-61747-3>
- Solberg, V. S., O'Brien, K., Villareal, P., Kennel, R., & Davis, B. (1993). Self-efficacy and Hispanic college students: Validation of the College Self-Efficacy Instrument. *Hispanic Journal of Behavioral Sciences*, 15, 80-95. <https://psycnet.apa.org/doi/10.1177/07399863930151004>
- Stroessner, S. J., Beckerman, L. S., & Whittaker, A. (2009). All the world's a stage? Consequences of a role-playing pedagogy on psychological factors and writing and rhetorical skill in college undergraduates. *Journal of Educational Psychology*, 101, 605-620. <https://psycnet.apa.org/doi/10.1037/a0015055>
- Sung, H. Y., Hwang, G. J., Lin, C. J., & Hong, T. W. (2017). Experiencing the Analects of Confucius: An experiential game-based learning approach to promoting students' motivation and conception of learning. *Computers and Education*, 110, 143-153. <https://doi.org/10.1016/j.compedu.2017.03.014>
- Van Ments, M. (1999). *The effective use of role-play: Practical techniques for improving learning*. Kogan Page.
- Watson, K., & Moskal, P. D. (2018). Scaling a Reacting game for use at a large public university. In C. E. Watson & T. C. Hagood (Eds.), *Playing to learn with Reacting to the Past: Research on high impact, active learning practices* (pp. 91-111). Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-61747-3>
- Weaver, J., & Weaver, L. A. (2017). *Red clay, 1835: Cherokee removal and the meaning of sovereignty*. Norton.
- Wouters, P. & van der Spek, E. D. & van Oostendorp, H. (2009). Current practices in serious game research: A review from a learning outcomes perspective. In T. Connolly, M. Stansfield, & L. Boyle (Eds.), *Games-based learning advancements for multi-sensory human computer interfaces: Techniques and effective practices* (pp. 232-250). IGI Global. <https://doi.org/10.4018/978-1-60566-360-9.ch014>

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