

**Do Cognitive Dispositions and Gender Matter in Applications
of Culturally Relevant Pedagogy? A Pilot Study at an Iraqi University**

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Abstract

The present pilot study examines the extent to which particular individual differences (i.e., general self-efficacy, goal orientation, and decision-making styles) may shape academic success in courses conforming to the principles of Culturally Relevant Pedagogy (*CRP*). End-of-semester course grades were used as a coarse, institutionally mandated measure of academic success. Gender differences were observed. For female students, a learning orientation was related to academic success. However, female students' academic success was also related to their reliance on specific decision-making styles (i.e., vigilance and hyper-vigilance). Male students' academic success was not significantly related to any of the individual difference measures. These findings suggest that applications of *CRP* may benefit from the recognition of students' preexisting dispositions and that such dispositions may differ between sexes. A discussion follows regarding how information regarding students' preexisting differences may benefit *CRP* instruction.

Keywords: academic success, culturally relevant pedagogy, cognitive dispositions, higher education

Instruction is situational. Its effectiveness is shaped by the interplay between instructor and students (Farias et al., 2010). In the present study, we ask whether particular students' dispositions are related to institutionally mandated performance measures (i.e., end-of-semester class grades) when the instruction in a college course conforms to the principles of *Culturally Relevant Pedagogy (CRP)*.

CRP is an instructional practice whose overarching aim is to enable learners to become informed and engaged intellectually, emotionally, socially, and politically. It rests on three key objectives for all learners, which are (a) academic success, (b) cultural competence, and (c) and sociopolitical consciousness, each supported by *CRP*'s reliance on the nurturing of critical analysis skills. Academic success refers to the "intellectual growth that students experience as a result of classroom instruction and learning experiences" (Ladson-Billings, 2014, p. 75). More practically, it is what "students know and can do as a result of pedagogical interactions with skilled teachers" (Ladson-Billings, 2006, p. 34). *CRP* relies on the belief that all learners are capable of academic success if adequate opportunities and tools are given, high expectations are set, and students take responsibility for their learning. Cultural competence entails learning that acknowledges and honors students' values, experiences, and sense of self (Howard, 2003) and, by doing so, promotes awareness of cultural diversity. Sociopolitical consciousness specifically reflects the use of critical thinking skills to examine, deconstruct, and evaluate existing societal systems and the knowledge upon which they rely, with the prospect of contributing to the development of alternative theoretical constructs and tools.

In essence, *CRP* does not merely rest on good intentions, but on instructors who translate intentions into actions, and who are aware of how their identity, life experience, knowledge, and institutional role may limit and bias their instruction as well as impact teaching and learning in their courses (Brown-Jeffy & Cooper, 2011). It also relies heavily on active learning, which entails instructional methods that engage students in the learning process. In short, *CRP* requires learners to do meaningful activities and reflect on what they are doing. For example, Lee (2006) suggests the development of instruction that links students' everyday knowledge (including cultural scripts and experiences) to traditional academic subject matters. Her work specifically focuses on teaching strategies for literary analysis that rely on students' cultural frames of reference so that students can easily transfer the acquired skills to unfamiliar texts. Similarly, Camp & Oesterreich (2010) report on the value of drawing on life experiences of injustice as a means to promote and practice inquiry-based learning among one's students.

Although it is a challenging proposition to implement, *CRP* is believed to be an effective pedagogy for facilitating learning inside and outside the classroom, providing students with diverse opportunities to acquire and demonstrate knowledge, helping students to appreciate their culture in relation to dominant cultural frames, and enhancing engagement and classroom management (Howard & Rodriguez-Scheel, 2017; Pilotti & Al Mubarak, 2021; Siwatu, 2007; Walker, 2019). *CRP* has attracted strong advocates among instructors who are looking for alternatives to traditional teaching methods, while skeptical instructors regard *CRP* as just another educational fad (Royal & Gibson, 2017). However, most of the research on the effectiveness of *CRP* tends to rely on interviews and observations, and to focus on the logistics and challenges of the implementation of such pedagogy, thereby resulting in largely descriptive studies (Morrison et al., 2008; Young, 2010) where instructors' experiences take the spotlight. Action research methodologies have had limited use at best (Lee, 1998; Pilotti & Al Mubarak, 2021; Sheets, 1995).

Although the effectiveness of *CRP* is intended to be measured through the lenses of its three objectives (i.e., academic success, cultural competence, and sociopolitical consciousness), students' academic success is generally the objective that takes the center stage for both detractors and proponents of *CRP* (Royal & Gibson, 2017; Schmeichel, 2012). In the current educational environment, academic decision-making practices are largely structured around grades (Kohn, 1993), which epitomize easily accessible, and widespread measures of performance. Grades are used as scorecards of students' abilities and knowledge that can qualify or disqualify them as holders of a degree, a scholarship, financial aid, and so on. Namely, irrespective of the broad definition that *CRP* gives to academic success, grades still matter as performance indices of the extent to which students have achieved the predefined standards mandated by the institution of higher learning in which they are enrolled. Thus, it is not unlikely for research on *CRP* to rely on grades as coarse measures of academic success (Dee & Penner, 2017; Gao, 2014; Parker & Rosenthal, 2011). Yet, the extent to which the effectiveness of *CRP* (as narrowly measured by grades) is modulated by specific students' cognitive dispositions remains unclear, especially among students from historically marginalized communities. Preexisting differences (if related to performance) may facilitate or weaken the application of *CRP* to a college course. As such, an educator's awareness of students' cognitive dispositions and their relevance to academic success can inform his/her teaching and dictate remedial adjustments. In the case study described below, we examine three kinds of cognitive dispositions: self-efficacy, goal orientation, and decision-making styles. The rationale for their selection is their purported relationship with academic performance as measured by grades.

Self-efficacy is generally defined as an individual's level of confidence in his/her ability to execute actions or attain particular performance outcomes (Bandura, 1977; Bandura & Schunk, 1981). Self-efficacy is born of prior experiences of success and is assumed to influence the initiation of intentional actions, the amount of effort applied to attain desired outcomes, and the persistence with which actions are performed in the face of challenges and obstacles (Bandura, 1977; Pajares, 1996). Its relationship with performance has been reported to be either positive (Bouffard-Bouchard, 1990; Lane & Lane, 2001) or negative (Vancouver et al., 2002), depending on whether it fosters effort and persistence or over-confidence (Moores & Chang, 2009).

The term *goal orientation* refers to the ways students may approach a course in which they are enrolled and its demands. The course may be seen as an opportunity to acquire knowledge and skills (i.e., learning or mastery orientation) or as an opportunity to acquire a good grade that bolsters students' GPA, which is judged as a valid reason, in and of itself, for enrolling in the course (i.e., grade or performance orientation). Evidence regarding the relationship between goal orientation and academic performance is mixed. Studies have reported a positive relationship with learning orientation (Coutinho, 2007; D'Lima et al., 2014; Eison, 1982; Schraw et al., 1995; VandeWalle et al., 2001), and a negative relationship with grade orientation (Beck et al., 1991), but mixed or contradictory findings have also surfaced (Beck et al., 1991; Elliot & Church, 1997; Harju & Eppler, 1997; Harris & Harris, 1987; Page & Alexitch, 2003).

Decision-making styles are patterns used to make decisions, usually under conditions of uncertainty (Janis & Mann, 1977). According to Mann et al. (1997), they include vigilance, hyper-vigilance, buck-passing, and procrastination. Vigilance reflects a disposition to gather all relevant information, as well as examine and evaluate the available alternatives carefully and without prejudice before making a choice. Vigilance is considered ideal for generating

sound and rational decisions. Hyper-vigilance refers to a disposition to choose a course of action frantically and hastily without considering all information available about options and their likely consequences. Defensive avoidance, which involves trying to escape the perceived burden of choosing something over something else, characterizes the remaining types. It may entail either procrastinating or transferring the responsibility for making decisions to someone else (i.e., buck-passing). Studies have reported performance to be positively related to vigilance (Kornilova et al., 2018) and negatively related to procrastination (Sagone & Indiana, 2021; Steel, 2007), but its relationship with the other decision-making styles remains undetermined.

Too often, the evidence concerning the relationship between learners' performance and dispositional differences does not situate such differences within any particular instructional model. In *CRP*-related research, a few exceptions exist though, but they are limited to addressing some particular objective or aspect of *CRP*. For instance, Ballen et al. (2017) reported that self-efficacy accounted for performance gains in the context of instruction encouraging active learning, which is a key aspect of *CRP*. Folk (2018) found that students who exhibited a learning orientation were the only students who displayed critical, analytical, and reflective modes of thinking, which represent the cornerstone of academic success for *CRP*. Evidence may also illustrate the undesirable outcomes of instructional approaches that negate core principles of *CRP*. For example, Taggart (2017) found that cultural discontinuity, which *CRP* opposes, was inversely related to students' grade point average (GPA). Cultural discontinuity is "a school-based behavioral process where the cultural value-based learning preferences and practices of many ethnic minority students—those typically originating from home or parental socialization activities—are discontinued at school" (Tyler et al., 2008, p. 281).

In light of the scant evidence regarding the role of cognitive dispositions in applications of *CRP*, it is reasonable to ask whether there is indeed a relationship between particular cognitive dispositions and performance (as measured by class grades) in *CRP*-compliant courses. Hypotheses may be informed by the extent to which cognitive dispositions are assumed to match the principles that define and structure *CRP* instruction in the classroom. For instance, based on the notion that *CRP* is a pedagogy of empowerment and engagement (Ladson-Billings, 1994), it is reasonable to expect that, in *CRP*-compliant courses, class grades would be positively related to self-efficacy as well as learning orientation. Because *CRP* emphasizes learners' strengths in critical thinking, offers students intellectual challenges within a cooperative and supportive learning environment that minimizes stress and anxiety, it is also reasonable to expect that class grades would be positively related to vigilance, but negatively related to hypervigilance and defensive avoidance modes.

To offer an adequate test of *CRP*, the present pilot study targets college students of the Kurdistan Region of Iraq, who are an under-represented population in educational research. Their society is shaped by patriarchal and collectivistic values defined along ethnic and religious lines. In such a society, gender is an unavoidably relevant demographic dimension, even among young college students. Across Iraq, including the Kurdistan region, access to university education by women has steadily improved (Al-Ali, 2008; Masika et al., 2014). Structural barriers, however, are embedded in cultural practices that define gender roles, thereby continuing to curtail women's educational and professional opportunities (Metcalf 2008; Soltanpanah et al., 2018). Thus, the present pilot study also examines whether gender differences exist in the relationship between particular cognitive dispositions of students who are enrolled in *CRP*-compliant courses and class grades. The scant extant evidence does not provide clear guidance as to how the position of dominance given to males in Iraqi society

might shape self-efficacy, goal orientation, and decision-making styles. Evidence from the Kurdistan Region exists though that test anxiety is higher in female students than male students (Faqe et al., 2016), leading to the prediction that females might display lower self-efficacy than males, adopt a performance orientation according to which grades are paramount, and rely more often on hyper-vigilance styles in decision making. Whether purported cognitive differences in dispositions might relate differently to the academic performance of females and males is a matter to be investigated.

In sum, the present study is guided by two key interrelated questions: What are the dispositions that characterize this sample of female and male students (e.g., general self-efficacy, goal orientation, and decision-making styles)? Do individual differences in the selected dimensions contribute to female and male students' class performance (as measured by end-of-semester grades) differently?

Method

Sample

The sample consisted of 166 students (104 males and 62 females) enrolled in one of three undergraduate courses (History of the Modern World, Comparative Political Systems, and International Relations) offered by a university in the Kurdistan Region of Iraq. The university relies on a US curriculum and requires instructors to follow a student-centered approach to instruction. The uneven number of males and females reflects the university's enrollment rates, thereby underscoring the barriers that women encounter in entering higher education within a patriarchal system that favors men for intellectual and professional pursuits. Participation complied with the guidelines of the Office for Human Research Protections of the U.S. Department of Health and Human Services and with the American Psychological Association's ethical standards in the treatment of research participants. Twenty-four additional students were excluded for early withdrawal or for failing to complete one or more of the surveys upon which the study relied.

Procedure and Materials

The present pilot study was conducted in the field. As a result, the participants were students enrolled in actual courses. Students qualified for participation by virtue of being enrolled in one of the courses selected for the study. They were assessed on actual tests and homework assignments, thereby making performance assessment relevant to them. Within the timeframe of a semester, students completed the assignments and tests on which class grades, used as indices of academic performance, were based. No student in the sample was enrolled in more than one of the selected classes. Convenience sampling was used to select 3 courses taught by the same 2 instructors: History of the Modern World (5 sections), Comparative Political Systems (1 section), and International Relations (1 section). Courses were selected to include students from across the university (History of the Modern World) as well as to ensure adequate representation of the political science major, one of the main constituents of the curriculum of the university (Comparative Political Systems and International Relations). The curriculum of each course was intended to emphasize the acquisition and practice of basic academic skills (e.g., writing, speaking, reasoning, etc.) within a specific domain of knowledge, and the acquisition of knowledge within that domain. Course selection also ensured uniformity of the measurement of performance across the entire semester. Each course consisted of a midterm and a final test as well as an assignment before and an assignment after the midterm. Test questions and assignments embraced all of the six types of information acquisition and processing highlighted by Bloom's taxonomy of human thinking (Anderson & Krathwohl,

2001; Bloom, 1956, 1976; Krathwohl, 2002). Namely, assessment required remembering, understanding, application, analysis, evaluation, and synthesis/creation of work. In addition to content, these courses were selected for their adequate enrollment, the consent of the instructors, the adoption of *CRP* instruction, and the unlikely overlap of students.

The instructors were recognized by their colleagues and students as thoughtful, student-centered educators of Middle Eastern descent. Peer observations and evaluations qualified them as learning-oriented educators (Farias et al., 2010) whose instruction was *CRP*-compliant. That is to say, the instructors were described as emphasizing collaboration and mutual support among students, offering plentiful developmental feedback, setting high standards, making an effort to include in their instruction local knowledge and facts, and using grades as opportunities to further learning. Their responses to the *LOGO F* scale of Eison et al. (1993) supported peer observations and evaluations. The scale assessed their attitudes towards grade and learning on a 5-point Likert scale from strongly disagree (1) to strongly agree (5), as well as their behaviors towards learning and grades on a five-point scale from never (1) to always (5). Instructors reported engaging in behaviors consistent with a learning orientation more often than behaviors consistent with a grade orientation. Similarly, they advocated more strongly learning-oriented attitudes than grade-oriented ones.

After students had the opportunity to acclimate to the course in which they enrolled and to understand its requirements, they were asked to complete three questionnaires as part of a self-assessment protocol: The New General Self-Efficacy (*NGSE*) questionnaire (Chen et al., 2001; Chen et al., 2000), the attitude portion of the *LOGO II* questionnaire (Eison & Pollio, 1985; 1989; Eison et al. 1983) and the Melbourne Decision-Making (*DM*) questionnaire (Mann et al., 1997; see Appendix A). Students were assured that the data from the questionnaires would be used to understand learning and teaching in the class and that their responses would remain confidential.

The *NGSE* questionnaire was used to measure students' general confidence in their ability to deal with a broad range of challenges (Bandura, 1989). For each of the eight statements of confidence that the questionnaire contained, students indicated the extent of their agreement or disagreement on a scale from strongly disagree (1) to strongly agree (5) with 3 serving as the neutral point (Cronbach's Alpha = .82). The attitude portion of the *LOGO II* questionnaire comprised 8 statements expressing a learning orientation and 8 statements expressing a grade orientation to be rated on a 5-point Likert-type scale from "strongly agree" (4) to "strongly disagree" (0) with the neutral point set at 2 (Cronbach's Alpha = .76; Eison et al., 1983). The Melbourne Decision-Making questionnaire was intended to measure decision-making styles, including vigilance (6 items), hyper-vigilance (5 items), procrastination (5 items), and buck-passing (6 items). In the questionnaire, each item described a particular way people approach decision making. Students were asked to indicate the extent to which each statement applied to them on a 3-point Likert-type scale, including "true for me" (2), "sometimes true" (1), and "not true for me" (0; Cronbach's Alpha = .81).

Results

The analyses described in this section answer two key interrelated questions: What are the dispositions that characterize this sample of female and male students (e.g., general self-efficacy, goal orientation, and decision-making styles)? Do individual differences in the selected dimensions contribute to female and male students' class performance (as measured

by end-of-semester grades) differently? All the results of inferential statistics discussed below are considered significant at the .05 level.

Assessment of Individual Differences

Students' ratings of the 8 items of the *NGSE* scale were averaged. The mean was treated as an index of general self-efficacy. Students' ratings of the items of the *LOGO II* scale endorsing grades were subtracted from those endorsing learning to create a preference score. Thus, a positive (+) score signified a preference for learning whereas a negative (-) score signified a preference for grades. A zero indicated no inclination for either orientation. Students' ratings of the *DM* questionnaire were organized into clusters illustrating four distinct styles (as per Mann et al., 1997): vigilance, hyper-vigilance, procrastination, and buck-passing. Each style was the average of the students' ratings of the items that pertained to it. Descriptive statistics are displayed in Table 1.

Table 1

Mean and Standard Error of the Mean (SEM) of Class Performance and Ratings of Self-Efficacy, Goal Orientation, and Decision-Marking Styles

	Female Mean	SEM	Male Mean	SEM	Mean
<i>Performance</i> (potential range: 0-100)	72.85	2.087	74.88	1.363	74.12
<i>Self-Efficacy</i> (potential range: 1-5)	2.01	0.068	1.98	0.051	1.99
<i>Goal Orientation</i> (potential range: 0-4)					
Preference for Learning	0.35	0.091	0.40	0.068	0.38
<i>Decision-Making</i> (potential range: 0-2)					
Vigilance	1.65	0.041	1.66	0.033	1.66
Hyper-vigilance	1.15	0.050	1.03	0.039	1.09
Procrastination	0.84	0.062	0.75	0.046	0.78
Buck-Passing	0.63	0.065	0.69	0.046	0.66

Separate one-way ANOVAs were performed on end-of-semester class grades (serving as a measure of academic success), self-efficacy beliefs, and learning preferences with gender as the independent variable to determine the presence or absence of gender differences in the sample of participants. The type of undergraduate course was not included in the analyses as a variable because it failed to differentiate students.

Female and male students did not differ in academic success, $F < 1$, *ns*. End-of-semester class grades were distributed almost evenly across all performance levels: A (i.e., 90-100) = 15.67%, B (i.e., 80-89) = 25.30%, C (i.e., 70-79) = 22.89%, D (i.e., 60-69) = 21.08%, and F (i.e., below 60) = 15.06%. There were no gender differences in self-efficacy beliefs, $F < 1$, *ns*. Important to note is that 97.59% of the self-efficacy ratings were below or equal to the neutral point of 3, suggesting that students' self-efficacy beliefs were low overall. There were also no gender differences in preference for learning, $F < 1$, *ns*. Interestingly, 66.87% of the students expressed a preference for learning over grades, 25.90% expressed the opposite preference, and 7.23% had no preference at all.

A 4 (decision-making style) X 2 (gender) mixed factorial ANOVA was conducted on the ratings of the *DM* questionnaire. A main effect of decision-making style was observed, $F(3, 492) = 232.13$, $MSE = .130$, $p < .001$, $\eta p^2 = .586$, but without a main effect of gender or a significant interaction, $F_s \leq 1.96$, *ns*. Pair-wise comparisons, adjusted for experiment-wise alpha through the Bonferroni correction, illustrated the extent of students' reliance on decision-making styles. Overall, vigilance was the most likely used style, $t_s \geq 14.45$, $p < .001$. Hyper-vigilance was favored over buck-passing and procrastination, and buck-passing was the least used style, $t_s \geq 3.24$, $p \leq .001$.

Assessment of the Contribution of Individual Differences to Performance

Linear regression analyses were conducted between end-of-semester class grades as the outcome variable and individual difference measures to understand the extent to which each measure made an independent contribution to female and male students' grades. Table 2 illustrates the results of these analyses. For female students, class performance increased with the endorsement of a learning orientation over a grade orientation, and with the adoption of vigilance and hyper-vigilance as decision-making styles. For male students, class performance was not significantly related to any cognitive dimension.

Table 2

Linear Regression Analyses Between Performance and Self-Efficacy, Preference for Learning, and Decision-Making Styles

	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sign.</i>
<i>Female Students</i>					
Constant	20.765	15.921			
Self-Efficacy	6.003	4.353	.197	1.379	<i>ns</i>
Preference for Learning *	7.040	2.806	.308	2.509	.015
Vigilance *	15.267	6.483	.299	2.355	.022
Hyper-Vigilance *	13.265	6.279	.315	2.112	.039
Procrastination	-1.443	5.164	-.043	-.280	<i>ns</i>
Buck-Passing	-2.585	5.199	-.080	-.497	<i>ns</i>
<i>Male Students</i>					
Constant	63.337	9.526			
Self-Efficacy	1.607	2.803	.060	.573	<i>ns</i>
Preference for Learning	2.632	2.191	.131	1.201	<i>ns</i>
Vigilance	3.530	4.379	.086	.806	<i>ns</i>
Hyper-Vigilance	2.517	4.393	.071	.573	<i>ns</i>
Procrastination	-7.259	3.797	-.246	-1.912	<i>ns</i>
Buck-Passing	6.270	3.492	.211	1.796	<i>ns</i>

Discussion

The findings of the current study can be summarized in three main points. First, there were no gender differences in the selected cognitive dimensions and academic success (as measured by end-of-semester class grades). Most students exhibited overall low self-efficacy beliefs and a preference for learning. Students also expressed a preference for a vigilant decision-making style over the other styles, suggesting the use of a practice that *CRP* nurtures. Yet, other less ideal decision-making practices were not entirely discounted.

Second, there were gender differences in the contribution of cognitive dimensions to academic success. Females' performance benefited from a learning orientation and the adoption of vigilance and hyper-vigilance in making decisions. Earlier studies had also reported a positive relationship between academic performance and vigilance (Kornilova et al., 2018), as well as academic performance and learning orientation (Coutinho, 2007; D'Lima et al., 2014; Eison, 1982; Schraw et al., 1995; VandeWalle et al., 2001). However, the positive relationship between academic success and hyper-vigilance was unexpected since this type of decision-making style is thought to embody a disposition to choose a course of action frantically and hastily without considering all information available, thereby potentially disrupting performance (Filippello, 2013; Pilotti, 2021). Yet, it is important to note that the female students of our sample have faced trauma and hardship arising from war, ethnic conflict, and traditional gender-role stereotypes, whose toll adds to the multiple demanding, and often conflicting obligations in their quotidian life (i.e., attending to their studies, families' household needs and business, etc.). Thus, hyper-vigilance may become an unavoidable way to approach daily obligations, an approach that mirrors a multi-tasking skill under time constraints. In this regard, Johnston et al. (1997) has argued that hyper-vigilance is an adaptive decision-making strategy in many real-life demanding situations that do not offer decision-makers the luxury of implementing the more elaborate and time-consuming analytical practices characteristic of vigilance. Under such conditions, it is an adaptive strategy that reflects an attempt by decision-makers to preserve effective performance as well as to moderate effort (Payne et al., 1992).

Interestingly, although males displayed a pattern somewhat similar to that of females, no significant contribution of any of the selected cognitive dimensions was obtained. The more opaque predictors of males' academic success may be accounted for by their limited willingness to share their attitudes in a culture where men are expected to be in control.

Third, only 63.86% received a C grade or higher. In higher education, academic success is ordinarily expressed as A, B, or C grades, while D and F grades are interpreted as indices of failing since they are below the minimum grade point average (the equivalent of a C grade) required for graduation. Thus, if the institutionally mandated cumulative index of academic success (i.e., end-of-semester class grades) is considered, *CRP* failed to promote the performance of 36.14% of the enrollees. However, the broader impact of *CRP* on students' learning might not have been captured by this index, as time constraints due to family and work obligations might be the primary culprit of unsuccessful performance. Its broader impact was reflected in students' evaluations at the end of the semester, which illustrated an overall and consistent appreciation for the mode and content of the instruction received. In their evaluations, students considered several criteria, including engagement, learning, and instruction (e.g., content coverage, organization, guidance, assessment, and human rapport). Both personalized comments and ratings, by and large, reflected students' confidence in the quality of the learning acquired. Increased interest in the subject matter they studied was also reported. Most students admitted to having been challenged by the course materials and the depth of the assessment protocols implemented. Yet, students recognized the high standards set by the course in which they were enrolled and expressed the belief that effort was key in meeting these standards and overcome the challenges that they might present. Some noted that challenges were not perceived as impossibilities, but rather as obstacles to overcome or novel problems to solve because support was deemed to be available from the instructor and classmates. Students' largely positive evaluations could be interpreted as the byproduct of the constructive and collaborative interpersonal atmosphere created by the instructors' reliance on *CRP*. Because evaluations were anonymous, their link to performance remained unassessed.

Recommendations

Although the uncovered pattern of contributions to performance may not generalize to other under-represented student populations, they contain two key messages for instructors who rely on *CRPs* or who may consider the adoption of *CRP*: (a) Applications of *CRP*, albeit well-executed, do not entail academic success (as measured by grades) for all students, especially when most of them possess low self-efficacy. Failures, although painful, can be powerful motivators for both educators and students to initiate a critical self-examination of the instruction that was available inside and outside the classroom to determine the sources of any mismatch between course demands and students' performance. A review of students' academic history and focus groups with selected students can offer valuable information to educators. Corrective actions can then be undertaken in future offerings of a course to target students at risk. For instance, among the remedial actions contemplated for the sample of participants of our pilot study, more flexible time constraints for course completion would need to be considered. (b) Knowing students' cognitive dispositions at the early stages of a course can, to a certain extent, inform teaching. For instance, awareness of a student's low self-efficacy allows instructors to structure their feedback by emphasizing the things that the student has accomplished while highlighting remedies for the things that he/she has not accomplished. The latter includes assuring the student that he/she is capable of reaching the expected standards and that capability is indeed malleable and subject to improvement through effortful action (Cohen et al., 1999). Bandura (1997) noted that one's self-efficacy beliefs are developed from four sources, each one a potential target of intervention: mastery experiences (i.e., experiences of successful performance), vicarious experiences (i.e., the observation of examples of the successful completion of a task, such as a test or an assignment), social persuasions (i.e., feedback, including judgment and appraisal from instructors or other significant others), and emotional arousal (i.e., emotions and physical sensations experienced during task completion). Similarly, knowledge of a student's orientation prioritizing grades over learning can be addressed by instructors at the start of the semester and reinforced with additional feedback focused on providing detailed and helpful comments. Feedback is intended to clarify what to improve and how to do it, must contain a reminder of the high standards to be reached, as well as the assurance that the student is fully capable of achieving them (Anding, 2005). Lastly, decision-making training may be considered for students at risk of academic failure under the assumption that optimal decision-making habits can be taught (Baron & Brown, 2012). Yet, it is necessary to recognize that although vigilance is a desirable strategy, hyper-vigilance is not symptomatic of a general breakdown in performance. Instead, it may be viewed by students as an adaptive response to the challenging demands of college life. Thus, understanding when and where hyper-vigilance instead of vigilance is used may offer useful insights into the features of the academic conditions that trigger it (Ding et al., 2020), which educators can utilize to introduce changes to class activities meant to reduce stress and anxiety.

Conclusion

CRP offers instructors and students opportunities to make teaching and learning meaningful, empowering, and engaging (Gay, 2018). Although a compelling case can be made for the importance of *CRP* as a way to rethink instruction to improve the educational performance of diverse student populations, gaps in educational outcomes of underserved populations remain (Howard & Rodriguez-Scheel, 2017). Furthermore, there may be limitations to applications of *CRP* (e.g., to what extent individual dispositions shape the effectiveness of *CRP*?), which need to be recognized and addressed through action research. The latter is a disciplined process of

inquiry conducted by instructors who desire to improve and/or refine their instructional actions (Manfra, 2019). Our study demonstrates that attention to individual differences, involving cognitive and demographic variables, may be a fruitful area of inquiry for action research. Although institutions of higher learning are faced with larger systemic challenges arising from the socio-political context in which they exist (O'Connor, 2020), the classroom is an excellent place to start restructuring academia to ensure an equitable and sustainable education for all (Focht & Bell, 2018).

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Appendix A

NGSE Questionnaire (Chen et al., 2021, p. 79)

I will be able to achieve most of the goals that I have set for myself.
 When facing difficult tasks, I am certain that I will accomplish them.
 In general, I think that I can obtain outcomes that are important to me.
 I believe I can succeed at most any endeavor to which I set my mind.
 I will be able to successfully overcome many challenges.
 I am confident that I can perform effectively on many different tasks.
 Compared to other people, I can do most tasks very well.
 Even when things are tough, I can perform quite well.

The Attitude Portion of the *LOGO II* Questionnaire

Easy classes that are not pertinent to my educational goals generally bore me.
 I get annoyed when lectures or class presentations are only rehashes of easy reading assignments. I enjoy classes in which the instructor attempts to relate material to concerns beyond the classroom.
 I appreciate the instructor who provides honest and detailed evaluation of my work though such evaluation is sometimes unpleasant.
 I am more concerned about seeing which questions I missed than I am with finding out my test grade.
 I find the process of learning new material fun.
 An instructor's comments on an essay test mean more to me than my actual test score.
 I prefer to write a term paper on interesting material than to take a test on the same general topic.
 I dislike courses in which a lot of material is presented in class, or in readings, that does not appear on exams.
 I do not find studying at home to be interesting or pleasant.
 Instructors expect too much out-of-class reading and study by students.
 I think that without regularly scheduled exams I would not learn and remember very much.
 Written assignments (i.e., homework, projects, etc.) that are not graded are a waste of a student's time.
 I think it is unfair to test students on material not covered in class lectures and discussions, even if it is in reading assignments.
 I dislike courses which require ungraded out-of-class activities.
 I think grades provide me a good goal to work toward.
Note: The term “teacher” in the original scale was changed to “instructor”

DM Questionnaire (Mann et al., 1997, p.12) with items organized by patterns

Vigilance

I like to consider all of the alternatives.
 I try to find out the disadvantages of all alternatives.
 I consider how best to carry out a decision.
 When making decisions, I like to collect a lot of information.
 I try to be clear about my objectives before choosing.
 I take a lot of care before choosing.

Buck-passing

I avoid making decisions.

I do not make decisions unless I really have to.

I prefer to leave decisions to others.

I do not like to take responsibility for making decisions.

If a decision can be made by me or another person, I let the other person make it.

I prefer that people who are better informed decide for me.

Procrastination

I waste a lot of time on trivial matters before getting to the final decision.

Even after I have made a decision, I delay acting upon it.

When I have to make a decision, I wait a long time before starting to think about it.

I delay making decisions until it is too late.

I put off making decisions.

Hypervigilance

Whenever I face a difficult decision, I feel pessimistic about finding a good solution.

I feel as if I am under tremendous time pressure when making decisions.

The possibility that some small thing might go wrong causes me to swing abruptly in my preference.

I cannot think straight if I have to make a decision in a hurry.

After a decision is made, I spend a lot of time convincing myself it was correct.