

International Undergraduates' Academic Resilience During Onset of the Coronavirus Pandemic's Educational Disruptions as Evidenced by Term Grade Point Averages

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ABSTRACT

How did international undergraduates perform academically during onset of the coronavirus pandemic's educational disruptions? The present study addresses this question by testing the hypothesis that an American public university's entire population of international undergraduates who were enrolled throughout academic year 2019–2020 would struggle academically (term grade point averages [GPA] below 2.0) to a greater extent in spring 2020 (coinciding with the pandemic's onset) than in fall 2019 and winter 2020 (pre-pandemic). Five different analyses of GPAs yielded disconfirmatory, counterintuitive evidence; for example, the hypothesis leads to the prediction that the number and percentage of international undergraduates who struggled academically should increase in spring 2020 compared to that in fall 2019 and winter 2020 terms. This report's results are consistent with these international undergraduates' resilience and their institution's beneficial support. The reasons for ruling out alternative explanations (widespread cheating, instructors' leniency, and grade inflation) are discussed.

Keywords: COVID-19, GPA, international undergraduates, pandemic, resilience, stress, transfer shock

International students' learning environment while attending American postsecondary institutions during academic year (AY) 2019–2020 included an extraordinary, new condition—the novel coronavirus (COVID-19) pandemic. In response to the COVID-19 pandemic, American postsecondary institutions (including the present report's) canceled in-person classes and examinations for spring and summer 2020, implemented online-only finals and instruction, and/or closed their campus (Burke, 2020; Redden, 2020; Smalley, 2020). The institutions' responses resulted in major disruptions of students' instructional/learning continuity, housing, interpersonal interactions, finances, graduation plans, and other hallmarks of their education (Dickerson, 2020; Gallagher et al., 2020; Krahrmer et al., 2020; Lederer et al., 2021; Osaze, 2021). These disruptions were consistent with the acknowledged characteristics of stressors—arousing, aversive, and unpredictable or uncontrollable conditions (Kim & Diamond, 2002).

The pandemic's educational disruptions might jeopardize international undergraduates' academic performance while attending American postsecondary institutions. These students could be particularly susceptible to the disruptions; they previously had to contend with a host of impactful learning environment conditions (discussed below), which would have little (if any) bearing on domestic counterparts. Addition of the pandemic's disruptions to the preexisting conditions might reasonably be expected to result in international undergraduates experiencing academic struggles. Consequently, the present study's purpose was to explore this expectation by analyzing international undergraduates' academic performance during AY 2019–2020. This study exploits COVID-19's educational disruptions to investigate these students' academic performance as indicated by various analyses of mean grade point averages (GPAs) earned before and during the pandemic's onset at an American West Coast public university (where the AY has three terms rather than two semesters). The historically extensive range of international student support services and programs at this university, in combination with its reputation of academic excellence, has attracted a dramatic influx of these students during the past decade (Fass-Holmes & Vaughn, 2018) and resulted in one of the 10 largest international student populations nationwide (Open Doors, 2020). As reported below, analyses of several measures of change in the international undergraduates' term GPAs at this university unexpectedly revealed decreases during the academic term coinciding with the pandemic's disruptions rather than expected increases (or vice versa). These changes are interpreted as evidence of the students' resilience.

The present study's primary objective was to test the hypothesis that the university's international undergraduates would struggle academically (administratively defined as GPA below 2.0) to a greater extent in spring 2020 (SP20), coinciding with the onset of COVID-19's educational disruptions and stressors, than during the two preceding terms (fall 2019 [FA19] and winter 2020 [WI20]). Although reports about the coronavirus pandemic's impact on student mobility and institutional finances already have appeared in the literature (e.g., Martel, 2020; NAFSA: Association for International Educators [NAFSA: AIE],

2020), research on international students' academic performance had not appeared by the time of this report's review. The present findings would be the first ones focusing specifically on international undergraduates' academic performance during the AY coinciding with onset of the pandemic's educational disruptions.

A secondary objective was to measure the degree to which international undergraduates who previously entered the university as transfer students (TRAN) struggled academically during SP20 compared with their counterparts who previously entered as first-time students (NFRS). This objective was based on previous reports of "transfer shock" (defined as a "severe drop in performance upon transfer" from one postsecondary institution to another; Hills, 1965, p. 202), which could be another stressor specifically affecting this undergraduate subgroup's academic performance. Consequently, the present results have been disaggregated by applicant type rather than treating undergraduates as a single, homogeneous group (Krsmanovic, 2021).

The following specific questions and related hypotheses, regarding the university's entire international undergraduate population who previously entered as NFRS or TRAN and enrolled throughout AY 2019–2020, were addressed in this study:

1. How many and what percentage earned GPAs below 2.0 (struggled academically) during each term in AY 2019–2020? Hypothesis: If these students struggled academically to a greater extent in SP20 (coinciding with the pandemic's onset) than in the two preceding terms, then the numbers and percentages who earned GPAs below 2.0 in SP20 should exceed the corresponding values in FA19 and/or WI20.
2. What were their mean GPAs during each term in AY 2019–2020? Hypothesis: If these students struggled academically to a greater extent in SP20 than in the two preceding terms, then their mean GPAs in FA19 and/or WI20 should exceed their corresponding value in SP20.
3. What was their change in GPA between successive terms, in particular between fall term (FA19) and SP20; or between WI20 and SP20? Hypothesis: If these students struggled academically to a greater extent in SP20 than in the two preceding terms, then the change in their mean GPAs between FA19 or WI20 and SP20 should be a negative value.
4. How many and what percentage earned an improved GPA in each successive term? Hypothesis: If these students struggled academically to a greater extent in SP20 than in the two preceding terms, then few and a low percentage of them should have an improved GPA in SP20 relative to FA19 and/or WI20.

5. How many and what percentage earned a worse GPA in each successive term? Hypothesis: If these students struggled academically to a greater extent in SP20 than in the two preceding terms, then many and a high percentage of them should have a worse GPA in SP20 relative to FA19 and/or WI20.

Relevant events during AY 2019–2020 to keep in mind for this report were as follows: The university’s administration first informed its students about the coronavirus on January 22, 2020; WI20 final examinations were administered online beginning March 14, three days after the pandemic’s declaration. On March 20, the governor of the university’s state issued a stay-at-home order, and the campus closed except for critical functions. WI20 ended on March 21; SP20 began on March 25, coinciding in its entirety with the pandemic’s educational disruptions and stressors. March 29 was the deadline for all students who could safely leave the campus to do so, and SP20 ended on June 12.

THEORETICAL CONTEXT

Challenge vs. Stress

The term “challenge” has been used in the educational research literature to describe the learning environment conditions that international students typically experience while attending American postsecondary institutions (e.g., Banjong, 2015; Gautam et al., 2016; Henneberry, 2019; Misra et al., 2003; Perry, 2016; Zhang-Wu, 2018). Examples of “challenging” conditions include acculturation (Yan & Berliner, 2013), American academic integrity standards (Bista, 2011) and teaching methods (Ota, 2013; Roy, 2013), campus climate (Ota, 2013), discrimination (Ota, 2013), English language (Jin & Schneider, 2019; Ota, 2013; Sherry et al., 2010; Yan & Berliner, 2013), family expectations (Ota, 2013; Yan & Berliner, 2009), finances (Sherry et al., 2010; Yan & Berliner, 2013), homesickness and/or loneliness (Ota, 2013; Sherry et al., 2010), mandatory compliance with federal immigration regulations (Urias & Yeakey, 2009), neo-racism (Lee, 2020), social norms (Ota, 2013; Sherry et al., 2010), and travel/visa restrictions (U.S. Department of State, 2021).

An alternative interpretation of international students’ learning environment conditions is that they could be experienced as stressors. The concept of stressor implies stimulating or arousing conditions that an individual perceives as aversive and unpredictable or uncontrollable (Fink, 2017; Kim & Diamond, 2002). If international students attending American institutions do perceive their learning environment conditions as aversive and unpredictable or uncontrollable, they could be experiencing stress (e.g., Misra et al., 2003; Yan, 2017) and risk negative impacts on their learning (e.g., Vogel & Schwabe, 2016).

The research literature on stressors includes many theoretical categorizations. Relevant examples include (but are not limited to) Berry’s (1997) stress-coping framework that divides stressors into individual (micro)- and group (macro)-level sources (Yan, 2017; Yan & Berliner, 2009, 2011, 2013); Alharbi and Smith’s

(2018) division of stressors into categories (acculturative, English-language proficiency, perceived discrimination, loneliness, and academic) on the basis of a literature review; and Henneberry's (2019) nine areas of stress (academic, language, financial, family, social, logistic, religious, dietary, and identity stressors) that reflect their sources. The following more simplistic categorization provides a context for the present study.

Stressors simplistically could be divided into *institution-specific* stimulating or arousing conditions that a student perceives as aversive and unpredictable or uncontrollable versus *institution-independent* ones. Institution-specific stressors are ones that originate from within the institution and differ between institutions; American academic integrity standards are an example because they originate from each institution's administration and differ between institutions regarding their associated policies, communications, etc. (Fishman, 2016). Institution-independent ones originate from sources other than the institution and are relatively generalized across institutions; family expectations are an example because they originate outside of the institution and generally occur across institutions due to their association with students' parents (Ota, 2013; Yan & Berliner, 2009). Accordingly, international students' conditions described in the research literature as challenges could be recategorized as follows: Institution-specific stressors include academic integrity standards, campus climate, discrimination (i.e., institutionally systemic), neo-racism (i.e., institutionally systemic), and teaching methods; institution-independent stressors include acculturation, discrimination (i.e., societal), English language, family expectations, finances, homesickness, loneliness, mandatory compliance with federal immigration regulations, neo-racism (i.e., societal), social norms, and travel/visa restrictions.

The above distinctions between institution-specific vs. institution-independent stressors, and between stressors vs. challenges are relevant in the present report because of the likelihood that the coronavirus pandemic's educational disruptions were stressors. To the extent that international undergraduates attending American postsecondary institutions did perceive the aforementioned learning environment conditions as stressors (Yan, 2017; Yan & Berliner, 2009, 2011, 2013), the educational disruptions associated with the COVID-19 pandemic's onset (Lederer et al., 2021) also would be perceived as stressors (e.g., Xia & Duan, 2020). Students would have perceived the pandemic's disruptions as stressors because of their stimulating or arousing, aversive, and unpredictable or uncontrollable conditions (Dickerson, 2020; Gallagher, 2021; Gallagher et al., 2020; Kraemer et al., 2020; Osaze, 2021). Stressfulness is further suggested by stakeholders' documented concerns about the pandemic having a negative impact on students' learning and development (e.g., Engzell et al., 2021; Lederer et al., 2021) and by studies showing negative impacts on students' mental health (Ma & Miller, 2020; Onyema et al., 2020). Some of the pandemic's disruptions would qualify as institution-specific stressors (e.g., campus closure communications and process) since they originate from the students' institution and differ between institutions; others would qualify as institution-independent

stressors (e.g., travel bans/restrictions) since they originate from a source other than the institution and are relatively generalized across institutions (Smalley, 2020).

Interpreting international students' learning environment conditions as stressors (rather than as challenges) has implications for the student development theory, specifically Nevitt Sanford's challenge and response principle underlying postsecondary institutions' efforts to promote learning. He described "challenge" as follows:

This approach to developing the individual grows out of the belief that people do not change unless they encounter a situation to which they cannot adapt with the use of devices already present. ... It is the job of the change-inducing institution to present the person to be changed with a succession of new challenges which will stimulate the desired responses. ... It is the teacher's task to find a way to reach these students, challenge them, jolt them out of their ruts, so that they will revise their ways of looking at things and thus be required to generate new perspectives and systems of response. ... By creating a little anxiety in [the student] we open him to learning. (Sanford, 1966, pp. 44–45)

The above quotation implies that Sanford defined "challenges" as strategies or approaches that teachers would use to "jolt [students] out of their ruts," to promote change in their responses, and, consequently, to promote student learning and development. If the challenge (teacher's strategy/approach) is so overwhelming that students have difficulty coping, the teacher would need to offer support (Sanford, 1966). If the challenge (teacher's strategy/approach) instead is too weak, the teacher would not have stimulated the desired responses. In other words, too much or too little challenge results in the absence of student learning and development (Chaves, 2006; McCallum, 2015). Sanford's support principle is relevant to the present study, because beneficial institutional support has the potential to promote international undergraduates' resilience and academic success during the pandemic's onset (cf, Robbins et al., 2018).

Most (if not all) of the aforementioned learning environment conditions experienced by international students studying in America are tangential to teachers' strategies/approaches for challenging students to promote their learning and development. If Sanford's challenge concept signifies teachers' strategies or approaches to promote students' learning and development, it could be considered a teacher-specific condition of students' learning environment. The research literature's challenges are different, because they reside outside of teachers' purview. These non-teacher-specific conditions of international students' learning environment consequently should be described as something other than "challenges," to distinguish them from Sanford's concept. Describing them instead as *stressors* in the present report accomplishes this distinction.

METHOD

This study was based on an American West Coast public university (its AY has three terms rather than two semesters) that afforded the following educationally significant and distinct advantages: 1) It has historically provided a broad range of student support services and programs plus additional ones specifically tailored for international students that were enhanced during the pandemic's onset; 2) these support services and programs, plus the university's strong reputation for academic excellence, have combined to attract one of the 10 largest international student populations nationwide (Open Doors, 2020); and 3) previous studies' results on this university's undergraduate population's academic performance (Dorado & Fass-Holmes, 2016; Fass-Holmes, 2016; Fass-Holmes & Vaughn, 2014, 2015) were available for potential comparison.

The entire international (F-1 or J-1 visa; U.S. Department of State, n.d.) undergraduate population attending this university in AY 2019–2020 comprised the study's participant pool ($N = 5,026$; NFRS = 3,761, TRAN = 1,265). Demographic data plus GPAs for all international undergraduates who initially enrolled at the university before or during FA19 were extracted from the student information system using structured query language programs (Fass-Holmes & Vaughn, 2014, 2015). The resulting records contained unique ID, term GPAs, applicant type (NFRS vs. TRAN), field of study, home country, and visa. These records were organized in a spreadsheet file with quality controls that precluded double-counting students with multiple records.

Records belonging to the university's entire population of international undergraduates who were enrolled for each of the three terms of AY 2019–2020 were identified and included in the study ($N = 3,970$; NFRS = 3,101, TRAN = 869); counterparts without enrollment in at least one term were excluded. This method ensured that data belonging to the exact same students were used in comparing GPAs between terms. An additional control consisted of identifying and deleting records with 0.00 term GPAs, which resulted from taking all classes in that term on pass/fail option; only authentic 0.00 term GPAs (i.e., F in all letter-graded classes within the term) were included. Confidentiality was ensured by carrying out procedures approved by the Institutional Review Board, and using encryption on a locked-down computer.

Descriptive statistical analyses consisted of calculating counts, percentages, means, and standard deviations on term GPAs earned by the university's entire population of international undergraduates who were enrolled in FA19, WI20, and SP20. In the calculations of percentages, the denominator was a total value appropriate for the data category in question; for example, the denominator for calculating the percentage of TRAN with term GPA <2.0 in SP20 was the total number of enrolled TRAN in SP20. These analyses were disaggregated by AY 2019–2020's terms, to facilitate calculations of GPA changes between terms.

RESULTS

Demographics

The university's entire population of international undergraduates who were enrolled in FA19, WI20, and SP20 included 3,970 F-1 or J-1 students; 3,101 had previously entered the university as NFRS and 869 as TRAN (the vast majority having transferred from community colleges). These students' top five home countries were China ($N = 2,771$; 69.8% of the population), India ($N = 228$; 5.7%), South Korea ($N = 182$; 4.6%), Taiwan ($N = 145$; 3.6%), and Hong Kong ($N = 87$; 2.2%). Their top five fields of study were Social Sciences ($N = 1,299$), Engineering ($N = 900$), Physical Sciences (including Mathematics; $N = 837$), Biological Sciences ($N = 362$), and Multidisciplinary Studies ($N = 251$).

Research Question 1—Term GPAs Below 2.0

In FA19, 3.2% ($N = 100$) of the university's entire population of international undergraduates who had previously entered as NFRS and were enrolled in FA19, WI20, and SP20 earned GPAs below 2.0 (administratively defined as "academically struggling"). In WI20, 2.3% ($N = 71$) earned GPAs below 2.0; in SP20, 2.1% ($N = 64$). The majority of these students, 69.0%, came from China, 10.0% from South Korea, and 8.0% from India. The largest percentages had a major in Social Sciences (29.0%), Physical Sciences (25.0%), or Engineering (20.0%).

In FA19, 8.7% ($N = 76$) of the university's entire population of international undergraduates who had previously entered as TRAN and were enrolled in FA19, WI20, and SP20 earned GPAs below 2.0 (academically struggling). In WI20, 4.7% ($N = 41$) earned GPAs below 2.0; in SP20, 3.3% ($N = 29$), which was 57.1% and significantly (Z test of independent proportions [http://vassarstats.net/prodiff_ind.html]; $Z = -2.193$, $p < .05$) higher than NFRS' corresponding value (2.1%). The majority of these students, 57.9%, likewise came from China, 18.4% from India, and 7.9% from Indonesia (none from South Korea). The largest percentages of these students had a major in Social Sciences (43.4%), Multidisciplinary Studies (22.4%), or Physical Sciences (18.4%).

These results indicate that less than 10% of the university's entire population of international undergraduates who were enrolled throughout AY 2019–2020 earned term GPAs below 2.0, and that the percentage who previously entered the university as TRAN and struggled academically was roughly double the corresponding percentage of NFRS. Contrary to what might reasonably be expected, and opposite to what the research hypothesis would predict, the number and percentage of these students who struggled academically decreased from FA19 and WI20 to SP20. They struggled academically to a lesser extent during onset of the pandemic's educational disruptions and stressors than during the immediately preceding terms.

Research Question 2—Mean GPAs

Figure 1 shows the mean GPAs and their changes between the three terms of AY 2019–2020, disaggregated by applicant type (NFRS in Figure 1A vs. TRAN in 1B) and by FA19 academic performance (term GPA below 2.0 in gray bars vs. at or above 2.0 in black). The university’s entire population of international undergraduates who previously entered as NFRS and were enrolled in FA19, WI20, and SP20 earned somewhat higher mean GPAs than TRAN counterparts in each of the three terms, regardless of whether they academically struggled (<2.0) or succeeded (≥2.0) in FA19. The mean GPA difference between these two applicant type groups was less than half of a letter grade in each term; that is, less than the difference between C and C- or between C and C+.

Figure 1 additionally shows a 90.1% improvement in mean GPA in WI20 (before the pandemic’s onset) and a further 14.6% improvement in SP20 (coinciding with the pandemic’s onset)—from D+ to B-; and from B- to ~B+, respectively—by the university’s entire population of international undergraduates who 1) previously entered as NFRS, 2) were enrolled in FA19, WI20, and SP20, and 3) academically struggled in FA19. The counterparts who academically succeeded in FA19 improved their mean GPA (B+) by 10.1% (A-) in WI20, and they improved by an additional 3.2% (A-) in SP20. TRAN counterparts who academically struggled in FA19 improved their mean GPA (~D+) by 107.9% (~B-) in WI20, and they improved by an additional 19.3% (~B) in SP20. The counterparts who academically succeeded in FA19 (B) improved by 13.4% (B+) in WI20, and they improved by an additional 4.6% (~A-) in SP20.

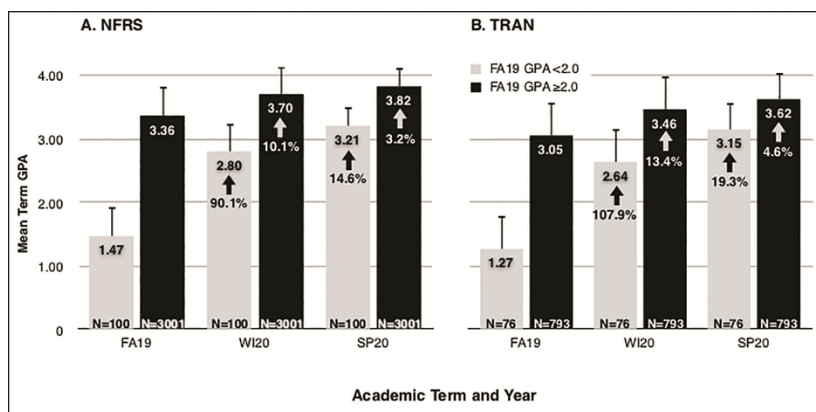


Figure 1: Mean Term GPA of International Undergraduates (Disaggregated by Applicant Type and Fall 2019 Academic Performance).

Note: Error bars represent standard deviations. Values at the top of each bar represent the value of the mean term GPA. Percentage values beneath the arrows represent the change from the previous term’s mean GPA, and the arrows indicate the change’s direction. Values at the bottom of each bar represent the number of international undergraduates. Abbreviations: NFRS = first-time students; TRAN = transfer students; FA19 = fall 2019; WI20 = winter 2020; SP20 = spring 2020.

The results in Figure 1 indicate that the direction of change in SP20's mean GPAs relative to FA19 and WI20 was the exact opposite of what the research hypothesis would have predicted for the university's entire population of international undergraduates who were enrolled throughout AY 2019–2020. These students counterintuitively showed an improvement in SP20 (coinciding with the pandemic's onset), whereas the research hypothesis would have predicted a worsening. The present results, therefore, disconfirm the research hypothesis that these students would struggle academically (term GPA below 2.0) to a greater extent during SP20 than during the preceding two terms.

Research Questions 3–5—Changes in GPAs Between Terms

Figure 2 shows additional measures of change in GPA between the three terms of AY 2019–2020: the percentages and counts of the university's entire population of international undergraduates who were enrolled in each of the three terms of AY 2019–2020 and whose mean GPA improved from FA19 to WI20 or from FA19 to SP20. These measures are disaggregated by the students' applicant type (NFRS in Figure 2A vs. TRAN in 2B) and by FA19 academic performance (term GPA below 2.0 in gray bars vs. at or above 2.0 in black). Of the 100 NFRS whose FA19 term GPA was below 2.0 (academically struggling), 87.0% ($N = 87$) improved in WI20 and only another 1.1% ($N = 1$) improved in SP20. Of the 3,001 NFRS whose FA19 term GPA was at or above 2.0 (academically succeeding), 51.1% ($N = 1533$) improved in WI20 and an additional 42.6% ($N = 605$) improved in SP20. Of the 76 TRAN whose FA19 term GPA was below 2.0, 93.4% ($N = 71$) improved in WI20 and only another 1.4% ($N = 1$) improved in SP20. Of the 793 TRAN whose FA19 term GPA was at or above 2.0, 51.8% ($N = 411$) improved in WI20 and an additional 53.7% ($N = 220$) improved in SP20.

Figure 3 shows the corresponding measures of change (percentages and counts) in GPA between the three terms of AY 2019–2020 for the university's entire population of international undergraduates who were enrolled in each of the three terms of AY 2019–2020 and whose mean GPA worsened from FA19 to WI20 or from FA19 to SP20. These measures are disaggregated by the students' applicant type (NFRS in Figure 3A vs. TRAN in 3B) and by FA19 academic performance (term GPA below 2.0 in gray bars vs. at or above 2.0 in black). Of the 100 NFRS whose FA19 term GPA was below 2.0 (academically struggling), 10.0% ($N = 10$) worsened in WI20 and only another 1.0% ($N = 1$) worsened in SP20 (Figure 3A). Of the 3,001 NFRS whose FA19 term GPA was at or above 2.0 (academically succeeding), 37.8% ($N = 1,134$) worsened in WI20 but 61.6% ($N = 700$) fewer worsened in SP20. Of the 76 TRAN whose FA19 term GPA was below 2.0, 6.6% worsened in WI20 and 19.7% ($N = 1$) fewer worsened in SP20 (Figure 3B). Of the 793 TRAN whose FA19 term GPA was at or above 2.0, 44.9% ($N = 356$) worsened in WI20 and 64.4% ($N = 229$) fewer worsened in SP20.

Figures 2 and 3 indicate that larger numbers and percentages of the university’s entire population of international undergraduates who previously had entered as NFRS or TRAN and were enrolled throughout AY 2019–2020 had improved GPAs in SP20 (coinciding with the pandemic’s onset) than in FA19 and WI20. In addition, smaller numbers and percentages of these students who were enrolled throughout AY 2019–2020 had worse GPAs in SP20 than in FA19 and WI20. The opposite results would have been predicted—smaller numbers and percentages of students with improved GPAs, larger numbers and percentages of students with worse ones. The directionality of these results counterintuitively disconfirms the research hypothesis that the university’s entire population of international undergraduates who were enrolled throughout AY 2019–2020 would struggle academically (term GPA below 2.0) to a greater extent during SP20 than during the preceding two terms. Instead, these students struggled academically to a lesser extent during onset of the pandemic’s educational disruptions and stressors.

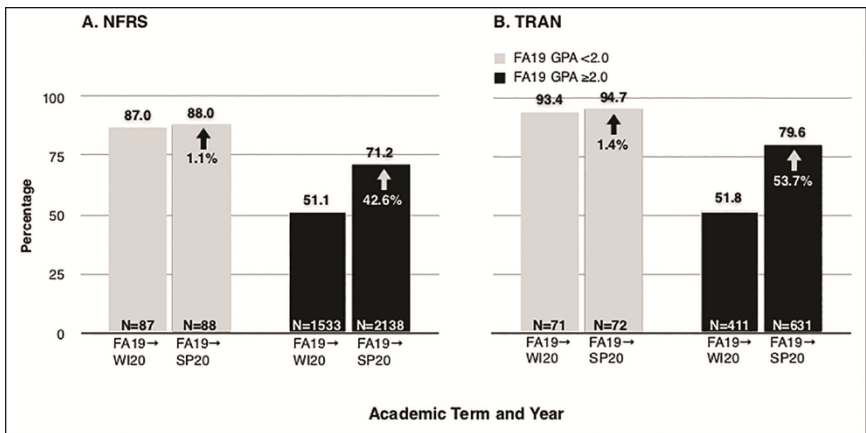


Figure 2: Percentages and Counts of International Undergraduates Whose Mean Term GPA Improved Between Terms (Disaggregated by Applicant Type and Fall 2019 Academic Performance).

Note: Values above each bar represent the percentage of international undergraduates whose term GPA improved from FA19 to WI20 or SP20. Percentage values beneath the arrows represent the change from the FA19 mean GPA, and the arrows indicate the change’s direction. Values at the bottom of each bar represent the number of international students. Abbreviations: NFRS = first-time students; TRAN = transfer students; FA19 = fall 2019; WI20 = winter 2020; SP20 = spring 2020.

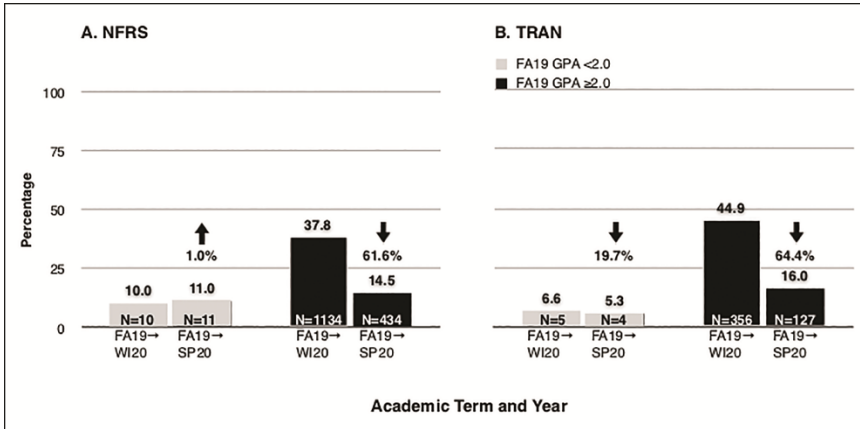


Figure 3: Percentages and Counts of International Undergraduates Whose Mean Term GPA Worsened Between Terms (Disaggregated by Applicant Type and Fall 2019 Academic Performance).

Note: Values above each bar represent the percentage of international undergraduates whose term GPA worsened from FA19 to WI20 or SP20. Percentage values beneath the arrows represent the change from the FA19 mean GPA, and the arrows indicate the change's direction. Values at the bottom of each bar represent the number of international undergraduates. Abbreviations: NFRS = first-time students; TRAN = transfer students; FA19 = fall 2019; WI20 = winter 2020; SP20 = spring 2020.

DISCUSSION

This study's primary objective was to determine how the university's entire population of international undergraduates who were enrolled throughout AY 2019–2020 performed academically (using term GPAs as an indicator) during the coronavirus pandemic's onset. The hypothesis, based on the likelihood that the pandemic's educational disruptions were stressors (Fink, 2017; Kim & Diamond, 2002) that could negatively impact learning (e.g., Vogel & Schwabe, 2016), was that these students would struggle academically to a greater extent in SP20 than in FA19 and/or WI20. Confirmation of this hypothesis would suggest that the pandemic's educational disruptions and stressors (institution-specific and/or institution-independent ones) negatively impacted these students independently of or synergistically with other stressors that they experienced while studying in America. A second objective was to measure the degree to which the university's entire population of international undergraduates who were enrolled throughout AY 2019–2020 and previously entered the university as TRAN struggled academically in SP20. If these students showed evidence of greater academic struggling in SP20 than their NFRS counterparts, it could indicate that transfer shock negatively impacted TRAN during the pandemic's educational disruptions and stressors.

These two objectives were accomplished by descriptive statistical analyses of GPAs earned by the university's entire population of international

undergraduates who were enrolled throughout AY 2019–2020. The analyses counterintuitively yielded evidence disconfirming each of the five research questions' hypothesis; contrary to what might reasonably be expected, these students struggled academically to a lesser extent during onset of the pandemic's educational disruptions than during the immediately preceding terms. The evidence additionally indicates that the university's entire population of international undergraduates who previously entered as TRAN and were enrolled throughout AY 2019–2020 struggled academically to a statistically greater extent than their NFRS counterparts, although less than 10% of each subgroup struggled.

The present findings' directionality supports the conclusion that the university's entire population of international undergraduates who were enrolled throughout AY 2019–2020 did not struggle academically to a greater extent in SP20 (during the pandemic's institution-specific and/or institution-independent stressors) than in FA19 and WI20; instead, these students struggled academically to a lesser extent. These findings are the first to provide evidence of international undergraduates showing improvement (rather than worsening) of academic performance during onset of the coronavirus pandemic, and they are educationally meaningful for researchers and administrators alike. They indicate that these students generally succeeded academically in SP20, despite the pandemic's disruptions and stressors. Their academic success could have been attributable (at least in part) to their having devoted more time or effort to studying, using translation software to facilitate their understanding of course content, exam questions, etc., and/or using other coping strategies during the pandemic's onset (Ferdiansyah et al., 2020; Xia & Duan, 2020; Yan, 2017). Further research is needed to learn more about these students' coping strategies.

What other explanation(s) could account for these counterintuitive, disconfirmatory findings? One candidate is that they constitute an outlier and are not truly representative. This explanation is unlikely because the present findings replicate and extend previous ones showing similarly low percentages of academically struggling international undergraduates during previous fall terms at the same university (Fass-Holmes, 2016; Fass-Holmes & Vaughn, 2014, 2015). Other candidate explanations include increased cheating, grade inflation, and/or instructors' sympathetic grading (Fass-Holmes, 2017; Pattison et al., 2013) during SP20 compared with FA19 and WI20. These explanations would require unreasonable stretching to compellingly account for the present findings' specific patterns. For instance, faculty and teaching assistants (TAs) would have needed to administer final examinations with ineffective and/or insufficient safeguards against cheating (contrary to established policies) to produce the present results' patterns. They also would have needed to expend time and effort determining which students in their classes were international NFRS or TRAN, then use the determinations to inflate or sympathetically assign grades accordingly to yield the present findings' patterns. These explanations consequently seem highly improbable considering that faculty and TAs also had to endure the pandemic's disruptions and stressors. Additional research will be required, however, to conclusively resolve these other explanations' validity.

The more parsimonious explanation (cf, Borowski, 2012) is that these students showed evidence of resilience (“attitudes and behaviours which are associated with an individual’s ability to recover from adversity and also to actively adapt in the face of these adversities and stress ... an essential capacity for a student to fully thrive within [higher education]”; Robbins et al., 2018, p. 44) and effective institutional support (Glass et al., 2021) during the pandemic’s onset. Although SP20’s learning environment conditions most likely did include stressors (Kim & Diamond, 2002), the university’s international undergraduates evidently adapted to remote learning and other educational disruptions more successfully than researchers and educators might have expected (Dhawan, 2020; Lee et al., 2021; Onyema et al., 2020; Serhan, 2020). This is not to say that every student resiliently succeeded academically during the pandemic’s onset. However, the percentages who did struggle academically are remarkably low (less than 10%), considering their extraordinary learning environment conditions.

This study’s second objective was to measure the degree to which the university’s entire population of international undergraduates who were enrolled throughout AY 2019–2020 and previously had entered as TRAN struggled academically in SP20 compared with their NFRS counterparts. It tested the hypothesis that if the former students showed evidence of greater academic struggling in SP20 than the latter, then transfer shock could have had an additional negative impact during the pandemic’s onset. The present results are consistent with this hypothesis: 1) The percentage of academically struggling TRAN in SP20 significantly exceeded the corresponding percentage of NFRS; and 2) TRAN’s mean GPAs were below NFRS’ corresponding values in SP20 (and the preceding two terms). These findings replicate and extend previous ones comparing the university’s TRAN and NFRS on measures of academic achievement, retention, graduation, and time to degree (Dorado & Fass-Holmes, 2016; Fass-Holmes, 2016). Although the difference between percentages of TRAN and NFRS who struggled academically in SP20 was statistically significant, both subgroups’ values were below 10%; instead, both largely succeeded academically.

Two noteworthy limitations should be kept in mind. First, the present study used a single university’s entire international undergraduate population that was enrolled throughout AY 2019–2020 (except students taking all classes pass/fail). Replications analyzing other postsecondary institutions’ data (including community colleges for the first objective) are needed to evaluate generalizability. Second, the university’s response to the pandemic might have varied between faculty, TAs, and/or departments; some could have adapted more efficiently and effectively to the pandemic’s disruptions than others. This issue requires further investigation, identifying the best practices that optimize adaptation.

This report’s results have implications for education policy and practice, specifically regarding the decisions about development and/or delivery of international undergraduates’ support programs and services. A deficit view that international undergraduates necessarily and collectively struggle academically because of their English language incompetency or linguistic inferiority to their

domestic counterparts (Jin & Schneider, 2019; Zhang-Wu, 2018) could lead administrators to implement support programs and services for all (or at least a substantial percentage of) international undergraduates. To the extent that any institution's existing beneficial supports promote international undergraduates' academic success (term GPAs at or above 2.0) during the pandemic's disruptions and stressors, their administrators can focus instead on additional programs and/or services designed specifically and cost effectively for those students who need them most rather than for the entire population.

In conclusion, this report contributes the research literature's first evidence of international undergraduates showing improvement (rather than worsening) of academic performance during onset of the coronavirus pandemic. The counterintuitive direction of change in SP20 GPAs relative to the immediately preceding two terms disconfirms the present study's hypothesis that international undergraduates should struggle academically to a greater extent in SP20 than in FA19 and/or WI20. This hypothesis is based on the likelihood that the pandemic's educational disruptions were stressors (Fink, 2017; Kim & Diamond, 2002) and put these students at a risk of negative impact on their learning (e.g., Vogel & Schwabe, 2016). Instead, the university's entire population of international undergraduates who were enrolled throughout AY 2019–2020 struggled academically to a lesser extent in SP20 than in FA19 and/or WI20. (e.g., Vogel & Schwabe, 2016). The present findings are indicative of these students' resilience during onset of the pandemic's stressful educational disruptions.

REFERENCES

- Alharbi, E. S., & Smith, A. P. (2018). Review of the literature on stress and wellbeing of international students in English-speaking countries. *International Education Studies*, 11(6), 22–44. <https://doi.org/10.5539/ies.v11n6p22>
- Banjong, D. N. (2015). International students' enhanced academic performance: Effects of campus resources. *Journal of International Students*, 5(1), 132–142. <https://doi.org/10.32674/jis.v5i2.430>
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, 46(1), 5–68. <https://doi.org/10.1111/j.1464-0597.1997.tb01087.x>
- Bista, K. (2011). Academic dishonesty among international students in higher education. In J. Miller & J. Groccia (Eds.), *To improve the academy: Vol. 30. Resources for faculty, instructional, and organizational development* (pp. 159–172). Jossey-Bass. <https://doi.org/10.1002/j.2334-4822.2011.tb00655.x>
- Borowski, S. (2012). *The origin and popular use of Occam's razor*. <https://www.aaas.org/origin-and-popular-use-occams-razor>
- Burke, L. (2020, March 9). *Colleges move online amid virus fears*. Inside Higher Ed. <https://www.insidehighered.com/news/2020/03/09/colleges-move-classes-online-coronavirus-infected-more>
- Chaves, C. (2006). Involvement, development, and retention. Theoretical foundations and potential extensions for adult community college students.

- Community College Review*, 34(2), 139–152. <https://doi.org/10.1177/0091552106293414>
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Education Technology*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Dickerson, C. (2020, April 26). 'My world is shattering': Foreign students stranded by coronavirus. The New York Times. <https://www.nytimes.com/2020/04/25/us/coronavirus-international-foreign-students-universities.html>
- Dorado, D. A. L., & Fass-Holmes, B. (2016). Academic achievement and demographics of international undergraduates. In K. Bista & C. Foster (Eds.), *Exploring the social and academic experiences of international students in higher education institutions* (pp. 227–252). IGI Global. <https://doi.org/10.4018/978-1-4666-9749-2.ch013>
- Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences*, 118(17), e2022376118. <https://doi.org/10.1073/pnas.2022376118>
- Fass-Holmes, B. (2016). International undergraduates' retention, graduation, and time to degree. *Journal of International Students*, 6(4), 933–955. <https://doi.org/10.32674/jis.v6i4.327>
- Fass-Holmes, B. (2017). International students reported for academic integrity violations: Demographics, retention, and graduation. *Journal of International Students*, 7(3), 644–669. <https://doi.org/10.5281/zenodo.570026>
- Fass-Holmes, B., & Vaughn, A. A. (2014). Are international undergraduates struggling academically? *Journal of International Students*, 4(1), 60–73. <https://doi.org/10.32674/jis.v4i1.497>
- Fass-Holmes, B., & Vaughn, A. A. (2015). Evidence that international undergraduates can succeed academically despite struggling with English. *Journal of International Students*, 5(3), 228–243. <https://doi.org/10.32674/jis.v5i3.418>
- Fass-Holmes, B., & Vaughn, A. A. (2018). International students reported for academic integrity violations—Is English deficiency a predictor variable? In K. Bista (Ed.), *Global perspectives on international student experiences in higher education. Tensions and issues* (pp. 157–177). Routledge. <https://doi.org/10.4324/9781315113456>
- Ferdiansyah, S., Supiastutik, & Angin, R. (2020). Thai students' experiences of online learning at Indonesian universities in the time of the COVID-19 pandemic. *Journal of International Students*, 10(S3), 58–74. <https://doi.org/10.32674/jis.v10iS3.3199>
- Fink, G. (2017). Stress: Concepts, definition and history. *Reference Module in Neuroscience and Biobehavioral Psychology*, 3–9. <https://doi.org/10.1016/B978-0-12-809324-5.02208-2>
- Fishman, T. (2016). Academic integrity as an educational concept, concern, and movement in US institutions of higher learning. In T. Bretag (Ed.), *Handbook of academic integrity* (pp. 7–21). Springer. <https://doi.org/10.1007/978-981-287-079-7>

- Gallagher, H. L., Doherty, A. Z., & Obonyo, M. (2020). International student experiences in Queensland during COVID-19. *International Social Work, 63*(6), 815–819. <https://doi.org/10.1177/0020872820949621>
- Gallagher, J. (2021). *Compounding stress: The pandemic's effects on mental health*. International Educator. <https://www.nafsa.org/ie-magazine/2021/4/6/compounding-stress-pandemics-effects-mental-health>
- Gautam, C., Lowery, C. L., Mays, C., & Durant, D. (2016). Challenges for global learners: A qualitative study of the concerns and difficulties of international students. *Journal of International Students, 6*(2), 501–526. <https://doi.org/10.32674/jis.v6i2.368>
- Glass, C. R., Godwin, K. A., & Matross Helms, R. (2021). *Toward greater inclusion and success: A new compact for international students*. <https://www.acenet.edu/Documents/Intl-Students-Monograph.pdf>
- Henneberry, D. (2019). International students: A population facing significant stress. *American Journal of Biomedical Science & Research, 3*(2), 142–143. <https://doi.org/10.34297/AJBSR.2019.03.000650>
- Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *Journal of Experimental Education, 33*(3), 201–215. <https://doi.org/10.1080/00220973.1965.11010875>
- Jin, L., & Schneider, J. (2019). Faculty views on international students: A survey study. *Journal of International Students, 9*(1), 85–97. <https://doi.org/10.32674/jis.v9i1.268>
- Kim, J. J., & Diamond, D. M. (2002). The stressed hippocampus, synaptic plasticity and lost memories. *Nature Reviews. Neuroscience, 3*(6), 453–462. <https://doi.org/10.1038/nrn849>
- Krahmer, S. M., McManus, G., & Sharma, R. (2020, March 4). *Ensuring instructional continuity in a potential pandemic*. Inside Higher Ed. <https://www.insidehighered.com/advice/2020/03/04/preparing-instructional-continuity-advent-covid-19-pandemic-opinion>
- Krsmanovic, M. (2021). The synthesis and future directions of empirical research on international students in the United States: The insights from one decade. *Journal of International Students, 11*(1), 1–23. <https://doi.org/10.32674/jis.v11i1.1955>
- Lederer, A. M., Hoban, M. T., Lipson, S. K., Zhou, S., & Eisenberg, D. (2021). More than inconvenienced: The unique needs of U.S. college students during the COVID-19 pandemic. *Health Education & Behavior, 48*(1), 14–19. <https://doi.org/10.1177/1090198120969372>
- Lee, J. J. (2020). Neo-racism and the criminalization of China. *Journal of International Students, 10*(4), i–vi. <https://doi.org/10.32674/jis.v10i4.2929>
- Lee, K., Fanguy, M., Lu, X. S., & Bligh, B. (2021). Student learning during COVID-19: It was not as bad as we feared. *Distance Education, 42*(1), 164–172. <https://doi.org/10.1080/01587919.2020.1869529>
- Ma, H., & Miller, C. (2020). Trapped in a double bind: Chinese overseas student anxiety during the COVID-19 pandemic. *Health Communication, 35*(10), 1185–1192. <https://doi.org/10.1080/10410236.2020.1775439>

- Martel, M. (2020). *COVID-19 effects on U.S. higher education campuses: Academic student mobility to and from China*. Institute of International Education. <https://www.iie.org/COVID19-Effects-on-US-Higher-Education-Campuses>.
- McCallum, C. M. (2015). Turning graduate school aspirations into enrollment: How student affairs professionals can help African American students. *The New York Journal of Student Affairs*, 15(1), 1–18. <https://commons.library.stonybrook.edu/nyjsa/vol15/iss1/2>
- Misra, R., Crist, M., & Burant, C. J. (2003). Relationships among life stress, social support, academic stressors, and reactions to stressors of international students in the United States. *International Journal of Stress Management*, 10(2), 137–157. <https://doi.org/10.1037/1072-5245.10.2.137>
- NAFSA: Association for International Educators. (2020). *Fall 2020 survey: Financial impact of COVID-19 on international education*. [fasthttps://www.nafsa.org/policy-and-advocacy/policy-resources/fall-2020-survey-financial-impact-covid-19-international-education](https://www.nafsa.org/policy-and-advocacy/policy-resources/fall-2020-survey-financial-impact-covid-19-international-education)
- Onyema, E. M., Eucheria, N. C., Obafemi, F. A., Sen, S., Atonye, F. G., Sharma, A., & Alsayed, A. O. (2020). Impact of coronavirus pandemic on education. *Journal of Education and Practice*, 11(13), 108–121. <https://doi.org/10.7176/JEP/11-13-12>
- Open Doors (2020). *2020 fast facts*. https://opendoorsdata.org/fast_facts/fast-facts-2020/
- Osaze, O. (2021, March 1). *Living through the pandemic as an international student*. Inside Higher Ed. <https://www.insidehighered.com/views/2021/03/01/congress-should-include-international-students-any-government-covid-19-relief>
- Ota, A. (2013). *Factors influencing social, cultural, and academic transitions of Chinese international ESL students in U.S. higher education* [Doctoral dissertation, Portland State University]. Portland State University PDX Scholar. http://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=2050&context=open_access_etds
- Pattison, E., Grodsky, E., & Muller, C. (2013). Is the sky falling? Grade inflation and the signaling power of grades. *Educational Researcher*, 42(5), 259–265. <https://doi.org/10.3102/0013189x13481382>
- Perry, C. J. (2016). Comparing international and American students' challenges: A literature review. *Journal of International Students*, 6(3), 712–721.
- Redden, E. (2020, April 20). *Colleges move summer classes online; some consider tuition reductions, technology fee waivers*. Inside Higher Ed. <https://www.insidehighered.com/news/2020/04/10/colleges-move-summer-classes-online-some-consider-tuition-reductions-technology-fee>
- Robbins, A., Kaye, E., & Catling, J. C. (2018). Predictors of student resilience in higher education. *Psychology Teaching Review*, 24(1), 44–52. <https://doi.org/10.32674/jis.v6i3.352>
- Roy, S. R. (2013). Educating Chinese, Japanese, and Korean international students: Recommendations to American professors. *Journal of International Students*, 3(1), 10–16. <https://doi.org/10.32674/jis.v3i1.514>

- Sanford, N. (1966). *Self & society: Social change and individual development*. Atherton.
- Serhan, D. (2020). Transitioning from face-to-face to remote learning: Students' attitudes and perceptions of using Zoom during COVID-19 pandemic. *International Journal of Technology in Education and Science*, 4(4), 335–342. <https://doi.org/10.46328/ijtes.v4i4.148>
- Sherry, M., Thomas, P., & Chui, W. H. (2010). International students: A vulnerable population. *Higher Education*, 60, 33–46. <https://doi.org/10.1007/s10734-009-9284-z>
- Smalley, A. (2020, July 27). *Higher education responses to coronavirus (COVID-19)*. National Conference of State Legislatures. <https://www.ncsl.org/research/education/higher-education-responses-to-coronavirus-covid-19.aspx>
- U.S. Department of State. (n.d.). *Directory of visa categories*. <https://travel.state.gov/content/travel/en/us-visas/visa-information-resources/all-visa-categories.html>
- U.S. Department of State. (2021). *COVID-19 travel restrictions and exceptions*. <https://travel.state.gov/content/travel/en/us-visas/visa-information-resources/covid-19-travel-restrictions-and-exceptions.html>
- Urias, D., & Yeakey, C. C. (2009). Analysis of the U.S. student visa system: Misperceptions, barriers, and consequences. *Journal of Studies in International Education*, 13(1), 72–109. <https://doi.org/10.1177/1028315307308135>
- Vogel, S., & Schwabe, L. (2016). Learning and memory under stress: Implications for the classroom. *NPJ Science of Learning*, 1, 16011. <https://doi.org/10.1038/npscilearn.2016.11>
- Xia, M., & Duan, C. (2020). Stress coping of Chinese international students in face of COVID19 pandemic: Cultural characteristics. *International Journal of Mental Health Promotion*, 22(3), 159–172. <https://doi.org/10.32604/IJMHP.2020.011117>
- Yan, K. (2017). Chinese international students' stressors and coping strategies in the United States. In R. Maclean & L. P. Symaco (Eds.), *Education in the Asia-Pacific region: Issues, concerns and prospects, volume 37* (pp. 1–145). Springer. <https://doi.org/10.1007/978-981-10-3347-6>
- Yan, K., & Berliner, D. C. (2009). Chinese international students' academic stressors in the United States. *College Student Journal*, 43(4), 939–960.
- Yan, K., & Berliner, D. C. (2011). An examination of individual level factors in stress and coping processes: Perspectives of Chinese international students in the United States. *Journal of College Student Development*, 52(5), 523–542. <https://doi.org/10.1353/csd.2011.0060>
- Yan, K., & Berliner, D. C. (2013). Chinese international students' personal and sociocultural stressors in the United States. *Journal of College Student Development*, 54(1), 62–84. <https://doi.org/10.1353/csd.2013.0010>
- Zhang-Wu, Q. (2018). Chinese international students' experiences in American higher education institutes: A critical review of the literature. *Journal of International Students*, 8(2), 1173–1197. <https://doi.org/10.32674/jis.v8i2.139>

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