A Case Study of University Students' Performance in Arabic and Islamic Culture Courses Before and During the Pandemic (Face-to-Face and Online Instruction)

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In the present study, we examined whether students' academic success in courses devoted to Arabic and Islamic culture changed when the familiar face-to-face delivery format (before the Covid-19 pandemic) was discarded in favor of an online synchronous delivery format (during the pandemic). The final class grades of students enrolled in one of four courses in a sequence devoted to Arabic culture and religion were compared while holding constant the variable instructor. The ability of early performance indicators to predict final class grades was also examined to assess whether there were differences between instructional deliveries. Superior performance and lower failure rates were observed

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online for courses at the beginning of the sequence, but not at the end of the sequence. These findings suggest that the impact of instructional delivery might vary depending on the students' accumulated academic experience.

Keywords: culture, religion, academic performance, online instruction, face-to-face instruction

INTRODUCTION

The sudden outbreak of Covid-19 infections has caused higher education institutions worldwide to shift to an online mode of teaching and learning almost overnight. Online learning refers to learning that may rely on different devices and technical platforms connected to the internet (e.g., mobile phones, laptops, desktops, etc.), and that takes place in a synchronous or asynchronous environment (Dhawan, 2020). The synchronous learning environment closely approximates face-to-face learning in the sense that students can attend live lectures and participate in real-time class discussions and interactions through the use of a camera and a microphone for oral communications, or a chatbox for written communications. In the asynchronous learning environment, students access class materials (e.g., pre-recorded lectures, forums for class discussions, reading materials, etc.) at their leisure, without the opportunity for instant feedback. The asynchronous option (i.e., students and instructors spatially and temporally separated) and the synchronous option (i.e., students and instructors spatially separated but able to communicate in real time) can also be combined into a hybrid or blended learning environment (Moorhouse, 2020).

One of the most often raised concerns regarding the sudden transfer to the online delivery mode was whether it would jeopardize learning, especially in students who were accustomed to face-to-face teaching and learning (Tartavulea et al., 2020). Answers to this question have usually involved comparisons within a single institution or across institutions, and even meta-analyses. Unfortunately, the diversity of the learning environments and the supporting technology selected by educational institutions along with the variety of disciplines and the quality of the materials and instruction delivered online have tempered generalizations to courses not included in the comparisons of the extant research. Notwithstanding such diversity, the available evidence does not seem to support the concerns of faculty and administrators regarding students' performance online. For instance, Elzainy et al. (2020) reported higher grades in online synchronous pre-med

courses at one institution, but only for female students in the early rather than later stages of their academic journey. Similarly, Engelhardt et al. (2021) reported higher grades in introductory macroeconomics, microeconomics, and statistics courses with hybrid synchronous and asynchronous online instruction. Iglesias-Pradas et al. (2021) also found a significant increase in students' academic performance in online courses, irrespective of the environment, for engineering courses. A similar view is offered by pre-pandemic meta-analyses, which tend to support the conclusion that academic performance is either higher online than in face-to-face courses or not different between the two modes (He et al., 2021; Jahng et al., 2007; Means et al., 2013).

To our knowledge, no study has specifically focused on comparing students' performance in Arabic and Islamic culture courses taught face-to-face before the pandemic and synchronously online during the pandemic. Can the pedagogical changes that were implemented to such courses and then suddenly transferred to the online delivery mode be equally effective in sustaining students' academic success, especially when such students are accustomed to face-to-face teaching and learning (Khasawneh, 2021)? The case study described here attempted to answer this question.

THE CONTEXT OF THE PRESENT STUDY

If an unexpected and impactful event, such as the COVID-19 pandemic, forces a sudden modality change in the delivery of higher education (i.e., from face-to-face to online classes), educators are given the noteworthy task of ensuring that the quality of the instruction they are used to delivering is preserved. In this context, concerns emerge that the unavoidable modality change might have altered, for the worse, students' performance, albeit the standards of evaluation have remained unchanged. Hence, the assessment of whether these concerns realistically apply to the courses taught online (during the pandemic) relative to those taught face-to-face (before the pandemic) becomes a pressing issue, as remedies must be considered if learning deficiencies are detected.

The present study originated from a request of faculty who taught Arabic and Islamic culture courses embedded in secular academic programs both before and during the pandemic. The request embodied their unwavering determination to assess objectively whether their efforts at instructional effectiveness, fostered by the opportunity for synchronous online delivery, were indeed successful in ensuring learning. To satisfy their desire to know, students' final class grades in classes taught by instructors face-to-face

before the pandemic were compared with grades in classes taught online by the same instructors during the pandemic. Initial performance indicators (e.g., first homework assignment and midterm test) were also examined to determine the extent to which they could predict academic success in Arabic and Islamic culture courses, and whether predictability differed between face-to-face and online instruction. It was hypothesized that if the two instructional modalities were equivalent in their impact on students' learning, final class grades would not differ. Furthermore, initial performance indicators would not differ in their ability to predict class grades.

It was acknowledged that the findings of the planned study would be of value to the participating instructors who had conceptualized the study as an instance of action research (Johnson, 2020; Mertler, 2019). In teaching, action research is the practice of disciplined inquiry conducted by educators who adopt a problem-solving, evidence-based approach to inform instruction with the goal of improving students' attainment. Thus, if differences were uncovered, a retrospective qualitative analysis of the discrepancies between online and face-to-face instruction would be put forth, and remedies or merely adjustments to the impact of such differences on future learning would need to be considered. For instance, its findings, accompanied by in-depth data-driven inquiries, could be used as a rationale for instructional and curricular changes guided by the realization that the online mode, introduced by the pandemic in many facets of the academic life of instructors and students (e.g., class meetings and office hours), would remain part of the higher education ecosystem of the future (e.g., hybrid or blended learning).

In the following sections, we first briefly discuss the teaching of Arabic and Islamic culture courses embedded in a secular general education curriculum, including their content and pedagogy. To draw attention to an understudied subject, Arabic and Islamic culture courses taught in the Kingdom of Saudi Arabia (KSA) are considered for our research. We then cover how an understudied population, such as Saudi female college students, responded to the challenges presented by the pandemic. Each topic is addressed as a general matter and as a matter specific to the institution and faculty who participated in our case study.

THE TEACHING OF ARABIC AND ISLAMIC CULTURE WITHIN SECULAR ACADEMIC PROGRAMS

In the Kingdom of Saudi Arabia, the teaching of Arabic and Islamic culture courses in secular academic programs has changed (Marghalani, 2018) from courses mostly devoted to the memorization and recitation of

the Qur'an and reading of the Sunnah to courses in which the analysis of sacred texts involves (a) consideration of the doctrine's constructs (e.g., Islamic values, principles, beliefs, and laws), (b) interpretation of its teachings and practices along with different viewpoints (as represented by the diversity of Islamic schools), and (c) understanding of how constructs and practices are related to current and past human and societal issues. Instructionally, educators of such courses have progressively moved away from the "sage on stage" pedagogical model, and have advocated a student-centered pedagogy that promotes active, problem-based, and collaborative learning (Kaj-Itani & Khalid, 2019; Kasim & Yusoff, 2014; Shamsaei, 2020). Islamic education is thus conceptualized as inclusive, giving individuals the knowledge to recognize their ethical responsibilities, the moral foundation to know what to do in matters of ordinary life, and the personal resources to honor such responsibilities through suitable activities (Al Kuhayli et al., 2021; Douglass & Shaikh, 2004).

Instructional and curricular changes can be interpreted as reflecting broader changes in the society where these courses exist. Even a brief visit to any of the metropolitan centers of KSA can offer unmistakable evidence of a country embarked on a transition from a tribal societal order sustained by oil revenues to one whose economy is diversified (Salam & Khan, 2018), knowledge based (Bafarasat & Oliveira, 2021), meritocratic (Eickelman & Piscatori, 2018; Yamada, 2020), and to a certain degree westernized. Economic changes have accompanied social changes induced by extensive top-down actions, the most visible of which has been the promotion of gender equity. As a result, the country has faced a progressive gender de-segregation of public spaces, as well as increases in women's enrollment in education (Jamjoom & Kelly, 2013), participation in the workforce (Varshney, 2019), and personal rights (Rizvi & Hussain, 2021). Of course, changes are up and coming, but challenges exist, including quiet forms of resistance to the new order of things seen as dismantling valued traditions and hiding unforeseen dangers. Thus, progress is yet to acquire the uniformity to which top-down interventions aspire. Although women can now enter educational programs and professional careers that were previously forbidden, most KSA universities are still gender segregated (Alasmari, 2020; Ahmed, 2020).

The present research singled out Saudi female students, as they are the most likely beneficiaries of instructional and curricular changes devoted to a more analytic, inclusive, and gender-equitable portrait of Islamic teaching. Furthermore, for these young women, the switch to

online learning is just one of the many changes to which they had to respond. In the span of less than a decade, female students have been the direct recipients of top-down policies that have suddenly and noticeably changed their quotidian lives, giving them enhanced agency and freedom of mobility that were before the sole domain of men (Nurunnabi, 2017; Pilotti et al., 2021; Saleh & Malibari, 2021). However, contrary to the top-down changes introducing equity into their quotidian lives, online learning could be conceptualized as a mixed bag of benefits and challenges (Biwer et al., 2021). For instance, the switch saved time, as it made traveling unnecessary (a benefit), but it returned women to the confines of the home, which might have prevented them from exercising their newfound independence and freedom of mobility. Furthermore, online learning demanded increased self-regulation of academic activities, which encompassed attention and effort regulation, time management, motivation, and investment of effort and time. As such, female students' responses to online learning are likely to have had sizable consequences on academic performance (Broadbent & Fuller-Tyszkiewicz, 2018; Gonzalez et al., 2021). On the one hand, their responses might have been adaptation seen as the only effective survival strategy. Namely, students did not resist change, but saw it as a set of opportunities (Biwer et al., 2021), leading to performance equal to that of the face-to-face medium or even enhanced performance. On the other hand, female students, under the weight of unrelenting demands to adapt to change, might have felt overwhelmed, leading to performance declines. In the present study, performance differences or similarities were intended to imply that students adopted one of these responses.

METHOD

Participants

The participants were 1,386 full-time undergraduate students who were enrolled in a course devoted to Arabic and Islamic Studies at a university located in the Eastern Province of KSA. The sample of participants included only female students. Institutional records classified them as Arabic-English bilingual learners of Saudi nationality whose age range was 18–25. Students' majors encompassed all fields offered by the selected universities, including engineering, computer science, architecture, and business. In an informal survey conducted before the pandemic, students reported having been unaccustomed to online academic courses before the

pandemic, even though they admitted to being frequent users of electronic forms of communication (WhatsApp, Twitter, etc.).

Procedure

The selected university offers a curriculum of USA import, which is taught through a student-centered pedagogy fostering active learning. The general education portion of its academic curricula has been approved by the Texas International Educational Consortium (TIEC) and the Saudi Ministry of Education. Included in the general education curriculum is a sequence of four mandatory courses devoted to the culture and Islamic religion of the Middle East, taught in Arabic (informally known as Arabic language Islamic studies, ALIS, courses). The sequence consists of ALIS 1211 (introduction to Islamic culture), ALIS 1212 (Islamic sociology), ALIS 2211 (Islamic communication), and ALIS 2212 (Islamic history with a special focus on the Prophet Mohammad's deeds). Students' enrollment tends to conform to the sequential order in which courses are organized, although deviations due to scheduling needs are not precluded. Consequently, the students enrolled in courses 1211 and 1212 (freshmen and sophomores) tend to have less academic experience under their belt than the students who take courses 2211 and 2212 (juniors and seniors), as indicated by the year of admission.

For each course, sections were selected that were taught by the same instructors both before and during the pandemic. A window of three semesters for each time period was considered for sampling. Whenever possible, sections with similar enrollment and minimal overlap of students were selected. If a student was enrolled in more than one ALIS course during a semester, performance in only one course was considered. Randomization was utilized to determine the course in which the student's performance was to be added to the sample. A longitudinal design whereby each student would be represented in each course was deemed unfeasible, as students tend to skip semesters between ALIS courses, and only three semesters of online instruction were available. As a result, the original sample of 1,832 students who completed an ALIS course was reduced to 1,386 unique entries. The range of the size of the sections included was 11–53.

Two instructors were identified who taught the same classes during the pandemic (through an online synchronous delivery mode) and before the pandemic (through a face-to-face delivery mode). In peer observations and end-of-course surveys completed by students, instructors were recognized as thoughtful student-centered educators who promoted active learning

in and outside the classroom. They possessed graduate degrees in Islamic culture and at least a decade of teaching experience (as per their curricula vitarum).

In both instructional modes, Blackboard was used as a platform to store course materials (e.g., assignment instructions, outlines of lectures, articles for reading assignments, etc.), submit assignments, and take tests. During the pandemic, Blackboard Collaborate was added to the platform for synchronous online classes. It allowed students and instructors to interact in real time either vocally (via a microphone) or in a written format (via a chat box function and/or a whiteboard). A video function was also available, which students used during tests (as per institutional requirements), but rarely during regular class time. Blackboard Collaborate also allowed students to display documents, share their computer screen, write on the whiteboard, etc. Thus, the online delivery mode was very similar to the face-to-face classroom experience with the exception that students and instructors were physically separated. Important to note is that at the selected university particular measures were taken to avoid misconduct during online tests, such as the mandatory activation of the video and microphone functions of Blackboard Collaborate, and the use of a lockdown browser function (which prevented access to websites and browsers other than the one that displayed the test). Furthermore, irrespective of the modality of instruction, plagiarism detection software was used consistently to assess students' performance on both tests and assignments.

Assessment

Students' class performance was indexed by their final class grades (0–100) or classified as pass or fail. According to the selected university's standards, scores below 66% denoted a failing grade, whereas 66% or above implied a passing grade. Each course comprised homework and class assignments before and after the midterm test (all serving as formative assessment opportunities), and a final test (serving as summative assessment). Namely, formative assessment aimed to measure learning as an ongoing phenomenon as well as to offer potentially valuable feedback to students and instructors, whereas summative assessment aimed to evaluate learning at the end of the semester. As such, although final test grades and class grades provided two comprehensive measures of learning in a given course (i.e., possessed the same scope), the former gathered information about learning at a specific occasion and time (i.e., the day the test was scheduled), whereas the latter gathered the same information from a wider

time frame (a semester) and multiple assessment formats (assignments and midterm test).

Assignments involved the reading and discussion of chapters of the Qur'an and Sunnah as well as scholarly articles of social and cultural relevance. For instance, the first assignment concerned a matter (e.g., value, norm, event, or issue) that students needed to objectively define and then critically analyze and evaluate, including its sources, status, implications or outcomes, and remedies. The matter selected varied depending on the content of the course, but reliance on sacred texts and scholarly articles was a key component of the assignment across all ALIS courses, whose main aim is to foster an evidence-based approach to critical analysis. Assignments, as well as questions of the midterm and final tests, involved five of the six levels of Bloom's taxonomy: memory, understanding, application, analysis, and evaluation (Anderson & Krathwohl, 2001; Bloom, 1956, 1976; Krathwohl, 2002). Because of the evidence-based approach to critical analysis of scholarly information fostered by ALIS courses, assessments tended to minimize verbatim retention and emphasize the other levels. Students' grades on the first homework assignment of the semester and midterm grades were collected as indices of initial performance. Final test grades and class grades were also collected, as both served as summative assessment measures.

Data Analysis

A 2 (instructional delivery mode: online versus face-to-face) × 4 (course: ALIS 1211, 1212, 2211, and 2212) between-subjects ANOVA was conducted on each type of assessment. Significant effects were followed by tests of simple effects to understand the nature of uncovered differences. Attendance was not used as a measure of engagement because ALIS courses were all well attended, thereby offering too little variability for inferential statistics. The variable "instructor" was not included in the analyses as it failed to produce any relevant effects, an unsurprising outcome given the fact that the two instructors are known to peers and students as possessing a similar teaching style, a similarity reinforced by their meeting at the start of each semester to ensure instructional parity.

RESULTS

All results described below are considered significant at the .05 level. Table 1 displays descriptive statistics.

Table 1. Mean (*M*) and Standard Error of the Mean (*SEM*) of Students' Performance (0–100), Organized by Course, Instructional Mode of Delivery, and Type of Assessment

Assessment	Mode	ALIS 1211 M SEM	ALIS 1212 M SEM	ALIS 2211 M SEM	ALIS 2212 M SEM
Form. Asse.					
1st Assign.	Online	82.14 (1.12)	87.54 (0.99)	84.91 (0.89)	82.43 (0.98)
	F-t-F	67.18 (1.33)	76.31 (1.10)	83.81 (1.30)	82.93 (0.85)
Midterm Test	Online	79.69 (1.15)	88.04 (1.02)	77.34 (0.91)	74.62 (1.01)
	F-t-F	69.63 (1.37)	79.95 (1.13)	70.00 (1.33)	68.86 (0.87)
Sum. Asse.					
Final Test	Online	70.99 1.29)	82.76 (1.14)	74.81 (1.02)	69.17 (1.13)
	F-t-F	75.27 (1.54)	75.46 (1.27)	77.33 (1.50)	71.26 (0.98)
Class	Online	81.20 0.86)	87.61 (0.76)	81.73 (0.68)	81.95 (0.75)
	F-t-F	69.97 (1.02)	79.76 (0.85)	82.95 (0.99)	81.78 (0.65)

Note. Online ALIS 1211: $n = 148$; ALIS 1212: $n = 188$; ALIS 2211: $n = 235$; and ALIS 2212: $n = 192$. Face-to-face ALIS 1211: $n = 104$; ALIS 1212: $n = 152$; ALIS 2211: $n = 110$; and ALIS 2212: $n = 257$. In each course, means are marked in bold when they are different between delivery modes.

Formative Assessment Indices

A 2 (instructional delivery mode: online versus face-to-face) × 4 (course: ALIS 1211, 1212, 2211, and 2212) between-subjects ANOVA was conducted on formative assessment. Table 2 displays the results of this analysis (top panel).

For the first homework assignment, besides the main effects of delivery mode and course, there was a significant interaction between mode and course, suggesting that differences in students' performance between online and face-to-face modes were not present in all courses. Tests of simple effects, submitted to the Bonferroni adjustment to reduce the inflation of alpha arising from multiple comparisons ($p = .0125$), illustrated greater performance for the online mode only in ALIS 1211 and ALIS 1212 (i.e., the initial courses of the Arabic and Islamic culture curriculum), ts ≥ 6.86, $p < .001$. No differences were uncovered in the other courses, ts ≤ 1.28, *ns*. For the midterm test, there were main effects of delivery mode and course. The absence of a significant interaction indicated that students' performance was greater in the online mode across all courses.

Table 2. Results of ANOVAs for Formative and Summative Assessment Measures

Assessment	Factors	Results
Form. Asse.		
1st Assign.	Mode	$F(1, 1378) = 76.75$, $MSE = 184.48$, $p < .001$, $\eta p^2 = .053$*
	Course	$F(1, 1378) = 26.26$, $MSE = 184.48$, $p < .001$, $\eta p^2 = .054$*
	Interaction	$F(1, 1378) = 24.60$, $MSE = 184.48$, $p < .001$, $\eta p^2 = .051$*
Midterm	Mode	$F(1, 1378) = 98.63$, $MSE = 195.20$, $p < .001$, $\eta p^2 = .067$*
Test	Course	$F(1, 1378) = 53.86$, $MSE = 195.20$, $p < .001$, $\eta p^2 = .105$*
	Interaction	$F = 1.31$, *ns*
Sum. Asse.		
Final Test	Mode	$F < 1$, *ns*
	Course	$F(1, 1378) = 22.19$, $MSE = 246.15$, $p < .001$, $\eta p^2 = .046$*
	Interaction	$F(1, 1378) = 8.85$, $MSE = 246.15$, $p < .001$, $\eta p^2 = .019$*
Class	Mode	$F(1, 1378) = 59.02$, $MSE = 108.70$, $p < .001$, $\eta p^2 = .041$*
	Course	$F(1, 1378) = 31.72$, $MSE = 108.70$, $p < .001$, $\eta p^2 = .065$*
	Interaction	$F(1, 1378) = 24.79$, $MSE = 108.70$, $p < .001$, $\eta p^2 = .051$*

Note: Significant results are marked by an asterisk.

Summative Assessment Indices

A 2 (instructional delivery mode: online versus face-to-face) × 4 (course: ALIS 1211, 1212, 2211, and 2212) between-subjects ANOVA was conducted on summative assessment measures. Table 2 displays the results of this analysis (bottom panel). The analysis uncovered a main effect of course and a significant interaction between mode and course. Tests of simple effects, submitted to the Bonferroni adjustment (p =.0125), illustrated that differences in students' final test performance between online and face-to-face modes were not present in all courses. Greater performance for the online mode was found only in ALIS 1212, $t(338) = 5.66$, $p < .001$. No differences were uncovered in the other courses, ts ≤ 1.98, *ns*.

The analysis of overall class performance, which determined whether students passed or failed the course in which they were enrolled, yielded a main effect for both delivery mode and course, as well as a significant interaction between mode and course, suggesting again that differences in students' performance between online and face-to-face modes were not present in all courses. Tests of simple effects, submitted to the Bonferroni adjustment (p =.0125), illustrated greater performance for the online mode only in ALIS 1211 and ALIS 1212, ts ≥ 6.67, $p < .001$. No differences were uncovered in the other courses, ts ≤ 1.16, *ns*.

In sum, the online mode tended to yield higher final class grades than the face-to-face mode but preferentially in early courses. However, a more distinct pattern emerged if class grades were classified as passing (≥ 66%) or failing grades (< 66%). Table 3 shows pass and fail rates as a function of mode and course. A chi-square analysis, conducted in each course, indicated that ALIS 1211 and 1212 displayed higher failure rates face-to-face than online, $\chi^2(1) = 23.51$, $p < .001$, and $\chi^2(1) = 21.75$, $p < .001$, respectively. However, ALIS 2211 did not display a delivery mode difference, $\chi^2(1) = 2.46$, *ns*, whereas ALIS 2212 exhibited a greater failure rate in the online mode, $\chi^2(1) = 10.37$, $p = .001$.

Table 3. Students' Pass and Fail Rates Organized by Course and Instructional Mode of Delivery

Mode/Rate Type	**ALIS 1211**	**ALIS 1212**	**ALIS 2211**	**ALIS 2212**
Online				
Pass Rates	92.57%	99.47 %	89.36%	83.33%
Fail Rates	**7.43%**	**0.53%**	10.64%	**16.67%**
Face-to-Face				
Pass rates	69.23%	87.50%	94.55%	93.00%
Fail rates	**30.77%**	**12.50%**	5.45%	**7.00%**

Note. In each course, percentages are marked in bold when they are different between delivery modes.

In sum, the online mode was linked to higher pass rates in earlier courses as well as higher final class grades. The online mode ceased to be advantageous in later courses. Namely, as academic experience increased, students appeared to be less likely to adapt to the online mode, thereby yielding largely equivalent performance or even a reversal (if failure rates of 2212 are considered).

Can Early Indices of Performance Predict Final Class Performance?

Point-biserial correlational analyses were carried out in every ALIS course to determine the extent to which each early indicator of performance (first assignment or midterm grades) would predict pass/fail class performance. Table 4 displays the correlation coefficients along with the coefficients of determination indicating the percentage of variance in early performance indicators that accounted for pass/fail outcomes. To wit, coefficients of determination illustrate the extent to which each measure of performance can predict pass/fail class performance.

Table 4. Point-Biserial Correlations Between Early Performance Indicators and Pass/Fail Outcomes by Course and Instructional Mode of Delivery.

Mode/ Assessment	**ALIS 1211**		**ALIS 1212**		**ALIS 2211**		**ALIS 2212**	
Online								
1st Assignment	**.369**	13.62%	.005	0.00%	**.204**	4.16%	**.325**	10.56%
Midterm Test	**.776**	60.22%	**.806**	64.96%	**.158**	2.50%	**.429**	18.40%
Face-to-Face								
1st Assignment	**.275**	7.56%	**.257**	6.61%	**.241**	5.81%	**.365**	13.32%
Midterm Test	**.663**	43.96%	**.481**	23.14%	**.261**	6.81%	**.414**	17.14%

Note. Significant two-tailed correlations are marked in bold.

The magnitude of coefficients of determination indicated that midterm test grades were good predictors of whether a student would pass or fail early ALIS courses (1211 and 1212) online, and ALIS 1211 administered face-to-face. Instead, irrespective of the mode of instruction, grades pertaining to either the first assignment or the midterm test were poor predictors of whether a student would pass or fail later ALIS courses.

DISCUSSION

In the present research, we attempted to measure the impact of the pandemic after the fact. As such, the research could be described as a case study (Stern & Kalof, 1979) whose results can be summarized in two main points. First, performance in early ALIS courses (as measured by grades), but not in later ALIS courses, was higher when instruction was online than when it was face-to-face. However, this pattern was not uniform. It was exhibited by only one of the formative assessment measures (i.e., the first assignment), and by class grades (a summative assessment measure). The midterm test, the other formative assessment measure, exhibited higher online performance across all courses, irrespective of their order in the sequence. This finding might be interpreted as dispelling the fear of some educators that the online delivery mode had unfairly jeopardized students' learning. Yet, when final class grades were categorized as pass or fail outcomes, a more distinct picture emerged. Early ALIS courses had lower failure rates online than when face-to-face, thereby supporting the conclusion that performance in such courses benefited from being online. The later ALIS courses yielded a different outcome. ALIS 2211 replicated the pattern of no difference, whereas the failure rates in ALIS 2212,

the very last course of the sequence, were higher online. Although it failed to reach significance, the pattern of ALIS 2211 replicated that of ALIS 2212, suggesting that the online switch did not benefit students with greater academic experience, and thus more accustomed to face-to-face learning.

Second, in early online ALIS courses, the midterm test was overall a good predictor of pass/fail outcomes. In early face-to-face ALIS courses, it was less so. Namely, the midterm test was a good predictor of pass/fail outcome in ALIS 1211, but much less so in ALIS 1212. Interestingly, in later ALIS courses, the midterm was a poor predictor of course outcomes. The first assignment was a poor predictor in all courses. Although both the first assignment and the midterm test engaged critical thinking skills on topics and materials examined in class, students often reported the midterm test to be more challenging due to the limited amount of time available for completion (1 hour). Thus, the midterm's time restriction might have made it a more sensitive measure of students' knowledge and skills.

These findings have been of value to the participating instructors who have treated this study as an instance of action research, and its findings as a rationale for instructional change (Johnson, 2020; Mertler, 2019). In teaching, action research is the practice of disciplined inquiry conducted by educators who adopt a problem-solving, evidence-based approach to inform instruction with the goal of improving students' attainment. For instance, the faculty whose data comprise our investigation now plan to rely on midterm grades in ALIS 1211 for interventions that can assist at-risk students during the second part of the semester. The instructors also plan to abstain from relying on students' grades on the first assignment for such interventions. However, they expect to review and revise the content of the first assignment in all courses and that of the midterm in ALIS 1212, and later courses, not only to ensure compliance with administrative guidelines and fair evaluation criteria but also to yield greater sensitivity to students' difficulties in attainment. The reason is that an earlier marker of academic difficulties is likely to be more helpful than a later marker.

Evidence-based approaches to the effects of instructional implementations can inform future teaching and shape learning in and outside the classroom for the better (Lockman & Schirmer, 2020; Thote & Gowri, 2020). In our study, we found online learning to be beneficial to performance (as measured by grades) in early courses of an ALIS sequence,

but to offer a mixed picture in subsequent ALIS courses, being either no different from face-to-face (as measured by grades) or detrimental (as illustrated by pass/fail rates). The findings of greater online performance are consistent with those examining academic success in a variety of other disciplines as a function of mode of delivery (Elzainy et al., 2020; Engelhardt et al., 2021; Iglesias-Pradas et al., 2021). They add to these findings by including an understudied student population as well as suggesting that the amount of students' academic experience with face-to-face instruction may be a relevant feature of the effectiveness of the online medium to be further examined. In the present study, as students' experience with the face-to-face classroom increased, the benefits of the online medium became scarce or even reversed into costs, thereby suggesting it may have hindered the transition and ensuing adaptation to the online platform. Not surprisingly, a post hoc examination of informal comments made by students and instructors during debriefing indicated that the frequency of positive comments toward the online medium in early ALIS courses was almost twice that of later ALIS courses. Negative comments toward the online medium, mostly involving the physical separation between students and instructors, which afforded fewer opportunities for informal interactions, and reports of feeling swamped, were more prevalent in later ALIS courses.

Experience creates habits that are often difficult to change as behavior becomes increasingly subjected to automatization (Wood & Neal, 2007). Evidence suggesting that adaptation to an unfamiliar mode of instruction was hampered by the amount of experience with face-to-face instruction brings to mind the question of exactly which features of students' prior learning did not translate well into the online mode. Gonzalez et al. (2020) attributed higher online performance in STEM-related courses to changes in students' learning strategies during the Covid-19 pandemic. Specifically, they asserted that learning changed from a discontinuous to a more continuous pattern, thereby enhancing online performance. In our study, post-facto evidence from debriefing and focus groups supported this assertion for all ALIS courses irrespective of the educational level of the students enrolled in such courses. However, the qualitative evidence collected did not allow us to identify the specific features of students' learning that prevented the benefits of spread-out learning to emerge in online courses attended by junior- and senior-level students.

Nevertheless, our findings offer a glance into the educational attainment of female college students in a society in transition from a patriarchal

system that has ignored or relegated women to the home to one in which they are considered the main propellers of change and equal to males as contributors to its economic engine. In such a society, which aspires to make meritocracy the guiding principle of attainment, gender becomes a key defining property of actions intended to improve formal education (Al Alhareth et al., 2015; Alyami, 2016). Not surprisingly, young women's academic success is one of the pillars of the 2030 Vision of KSA, a plan that is intended, among other things, to promote a sustainable education (Al-Abdulmenem, 2019). The plan specifically envisions a future in which education at all levels and for all citizens is inclusive, of quality, and capable of promoting lifelong learning (United Nations Development Programme, 2015). The plan has resulted in substantial top-down gender equity efforts, which are becoming more visible and impactful as time goes by. For instance, academic programs and professional opportunities once reserved only to men have been opened to women, archaic restrictions on women's independence have been discarded and rights promoting gender equity have gradually been inscribed into the law. One of the most visible consequences of top-down gender-equity efforts is a quotidian life that is an odd mixture of old and new customs and habits coexisting mostly by ignoring each other's presence. Another consequence is that women's educational attainment, including K-12 and higher education, has emerged as higher than that of males (El-Moussa et al., 2021; Barry, 2019). Of course, although the path to gender equity has been laid, substantial challenges exist for women's participation in the labor force and attainment of wage parity (Barry, 2021). Amid these persisting challenges, widespread concerns have emerged that the Covid-19 pandemic, which has brought back home confinement in women's lives, might have jeopardized their recent educational attainments. Our study, albeit focused on a particular set of topical courses, seems to point not only to the resilience of young women but also to illustrate the determination of those who are entrusted with instruction (i.e., educators) to ensure that the steps toward progress continue unabated. Indeed, as noted in the introduction to this article, the faculty teaching courses in Arabic and Islamic culture were the motivators of our study and the principal consumers of its findings along with their students.

We believe that the methodology used in our case study may serve as a road map for instructors to develop an accurate understanding of and reflect upon their students' performance during the pandemic and beyond. Of course, the present study has limitations to be addressed in

future research. First, results may not generalize to Arabic and Islamic culture courses taught under a different set of pedagogical principles. Second, evidence comparing face-to-face to synchronous online courses may also not generalize to asynchronous and hybrid modes. Third, our study concerned seasoned instructors. Thus, evidence may not apply to less experienced instructors for whom a sudden and unavoidable change in delivery mode might have been more taxing. Fourth, our student sample involved only female students whose overall performance in general education courses tends to be higher than that of males (Alghamdi & Al-Hattami, 2014). Thus, gender differences may exist which our study was unable to address.

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