

Differential Impacts of Instructional Modes: Examining Academic Performance and Completion Rates in an English Writing Course for Undergraduate Health Science Students in the UAE

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Abstract

This research investigates the differential impacts of three instructional modes – face-to-face, online, and blended – on students' academic performance and completion rates in an English writing course within the context of the United Arab Emirates. A cohort of 396 undergraduate female students aged 18 to 25 enrolled in a health science degree program participated in the study. The analysis of course grades revealed no statistically significant differences across instructional modes, with the online mode exhibiting a slightly higher mean grade. However, a compelling narrative emerged when examining completion rates, with the face-to-face mode demonstrating a significantly higher rate than online and blended modes. These findings align with the hypotheses positing differences in completion rates but not necessarily in grades across instructional modes. The study provides valuable insights for educators and institutions seeking to optimize instructional strategies, emphasizing the nuanced dynamics of student success beyond quantitative academic achievements. Limitations and implications for future research are also discussed.

Keywords: Instructional modes, Academic performance, Completion rates, Academic writing, Educational technology

1. Introduction

The transformation brought about by technological advancements has significantly reshaped the educational landscape. Educators are now encouraged to seamlessly integrate technology into their teaching methodologies to make learning more engaging and enjoyable and boost students' motivation. The shift towards online education has been steadily growing, with some courses now being entirely conducted in the virtual realm. More than thirty percent of higher education students in the United States have enrolled in at least one distance education course (Babson Survey Research Group, 2017). In addition, the unforeseen emergence of the COVID-19 pandemic triggered profound disruptions in global education. Institutions were compelled to swiftly transition all classes to an online format to curb the virus's spread. This sudden shift posed challenges for institutions lacking preparedness, requiring them to optimize existing resources while enhancing technological infrastructure and providing staff with necessary upskilling. The transition had a noticeable impact on students and teachers, creating a sense of 'disconnect' as traditional social interactions abruptly ceased. Despite online learning having existed since the 90s, its perceived value has historically not equaled in-person learning. Even the most sophisticated online platforms have struggled to fully replicate the benefits of face-to-face tutorial sessions, where instructors provide personalized feedback and valuable study tips. However, this abrupt move to distance learning has prompted experts to question the future of education.

Mire's (2019) interviews with 23 education experts revealed a consensus that the future of education lies in digital formats and innovative education approaches. They agreed that the future of education is moving away from a systematic classroom approach and trending towards a greater need for online learning. According to Peter Arvai, CEO and co-founder of PREZI, the remote classroom is expected to continue dominating and gaining popularity due to its accessibility, cost-effectiveness, and convenience offered by virtual learning tools and platforms. This, in turn, emphasizes the importance of enhancing engagement, interactivity, and collaboration in the evolving education landscape. (Mire, 2019, p.1)

However, if the demand for online classes increases, what measures must be adopted to adequately equip students with the skills to cope? Several studies have evaluated the effectiveness of online education. Still, a few have focused on how course contents can be reshaped to keep up to date with the growing demands of the 21st Century.

1.1 The Research Problem

The increasing adoption of varied instructional formats, such as online, blended, and traditional face-to-face teaching, has significantly altered the landscape of higher education, forcing educational institutions worldwide to adapt rapidly to remote and hybrid teaching models. While these changes offer potential benefits in terms of flexibility and accessibility, they also raise critical questions about the effectiveness of different instructional methods regarding student academic performance and course completion rates. There is a lack of comprehensive understanding and consensus on how these distinct instructional formats

impact student learning outcomes, particularly in specific courses such as English writing. This gap in knowledge presents a significant problem for educators, curriculum designers, and policymakers striving to optimize educational strategies and ensure the best possible outcomes for students. Without clear evidence on the efficacy of online, blended, and face-to-face instructional methods, decisions regarding course design, resource allocation, and teaching approaches may not be optimally aligned with student needs and learning objectives. Therefore, the problem addressed by this study is the need for an empirical investigation into the comparative effectiveness of online, blended, and face-to-face teaching formats in an English writing course at the undergraduate level in the United Arab Emirates.

The utilization of diverse instructional methods, including face-to-face, blended, and online teaching, during the academic year 2019-2022 posed a challenge in understanding their respective impacts on students' performance. In the Gulf region, particularly the UAE, cultural considerations hinder the widespread use of cameras during virtual classes, potentially influencing the effectiveness of online teaching. The research problem revolves around evaluating the outcomes of these varied instructional formats and addressing the unique challenges of cultural preferences, aiming to identify weaknesses and formulate improvements in course content and delivery methods. This study explores how these factors collectively contribute to the educational landscape, specifically focusing on a Health Sciences College in the UAE, providing insights for refining pedagogical approaches in similar cultural contexts.

1.2 Purpose of the Study

This research aims to fill the existing knowledge gap by providing data-driven insights that can guide educational stakeholders in making informed decisions to enhance the quality of teaching and learning in the UAE's evolving higher education landscape. It aims to systematically investigate and compare the effects of three different instructional formats - online, blended, and face-to-face - on undergraduate students' academic performance and course completion rates in an English writing course. This research aims to discern whether and how the mode of Instruction influences student outcomes, specifically focusing on the contexts of an online learning environment, a blended learning approach combining online and in-person elements, and a traditional classroom setting. By analyzing course grades and completion rates among students enrolled in these distinct formats, the study seeks to provide empirical evidence on the effectiveness of each instructional method. The ultimate goal is to inform educators, curriculum developers, and policymakers about the most effective strategies for enhancing student learning experiences and outcomes in the context of the rapidly evolving landscape of higher education. This research holds particular significance in the contemporary educational environment, where digital transformation profoundly reshapes pedagogical practices and learner engagement.

1.3 Research Questions

In contemporary education, face-to-face, online, and blended Instruction delivery modes have become integral to academic discourse. As educators navigate this landscape, they must delve into the nuanced outcomes of these instructional approaches. This research embarks on a quantitative exploration to ascertain the extent of statistically significant differences in first-year composition grades among students exposed to face-to-face, online, and blended modes. Additionally, the study endeavors to unravel the intricacies of completion rates within these instructional settings. Two research questions are explored:

1. **Research Question 1 (on Composition Grades):** *To what extent does a statistically significant difference exist in the first-year composition grades among students in face-to-face, online, and blended instructional modes?*
2. **Research Question 2 (on Completion Rates):** *What is the statistically significant difference in completion rates among students in face-to-face, online, and blended instructional modes?*

2. Literature Review

Exploring the Dynamics of Traditional and Online Teaching: A Focus on Writing Courses in Higher Education

Distance learning is by no means a new phenomenon, and it has experienced significant global growth with the advent of cutting-edge information and communications technology. The rise of distance or online education has been accompanied by more research on the subject, which provides a global perspective on the dynamics related to student participation and performance.

A report by the U.S. Department of Education (2010) adopted a meta-analytic approach that yielded interesting results. Using empirical studies of the effectiveness of online learning from 1996 to 2008, the report compared online and traditional face-to-face instruction and measured student learning outcomes. The studies primarily covered higher education and reflected K-12 education to a much lesser extent. The findings indicated that "students in online learning conditions performed modestly better than those receiving face-to-face instruction." It also revealed that the effectiveness of online learning is reflected across different course contents and types of learners. This strengthens the view that online learning can be effectively implemented in undergraduate, graduate, and professional studies.

The overall findings show that classes taught completely online or blended/hybrid achieve more impressive student learning outcomes than traditional classes that rely only on face-to-face Instruction. However, the report clarified that it was not advancing the idea that online learning is superior as a medium, as the meta-analysis did not demonstrate this notion. It further stated that time spent, curriculum, and pedagogy varied online and in

classrooms. The study noted that consideration should be given to the view that online learning lends itself to increased learning time than face-to-face instruction.

Hurlbut (2018) indicated that students enrolled in courses delivered in a classroom environment "did not demonstrate a significant advantage" over students who did online learning in terms of grades and averages. The study examined students' performance in a teacher education program at a North Texas university and showed that the grades and assignment scores were negligibly higher for students in traditional classes. A noteworthy finding from the study is that students who indicated comfort with online learning tended to get better grades overall in the course under review. Students in both the online and classroom setting underscored the importance of receiving feedback from instructors, and students engaged in online learning registered better grades when they took part in at least one live session with the instructor on Blackboard Collaborate (BBC). Such a view echoes that of Kalaichelvi & Sankar (2021), whose research study shows the effectiveness of blended learning in Higher Education. According to them, it should be the teaching method adopted after Covid-19.

Atchley, Wingenbach, & Akers (2013) compared course completion rates and academic performance between students taking online and traditional courses. Regarding grades, students enrolled in online classes recorded a higher percentage of 34.6%, while students in traditional courses had 31.3%. The research also revealed that online courses registered a higher percentage of Ds and Fs, while classroom courses had more Bs and Cs. Regarding enrollment, online students had a slightly lower course completion rate at 93.3%, compared to 95.6 for students in the classroom setting. The study utilized archival data for students enrolled at a university in the southwest U.S. The authors pointed out that existing research on the course completion rates in online education is mixed. They noted that their findings on student performance support previous research showing positive figures for online courses.

However, the research on online learning does not always yield positive results. The findings of Bir (2019) revealed that online education negatively impacted students' grades in a mechanics course taught at a Midwestern university in the U.S. At the end of the course, the students in the online class scored substantially lower than those in the traditional classroom. The study suggested that the online pedagogy for the course did not provide an adequately seamless and suitable transition for students unaccustomed to e-learning.

Likewise, Joji et al. (2022) conducted a study to identify the "perception of online and face-to-face microbiology laboratory sessions among medical students and faculty at Arabian Gulf University." The study found that more than 50.6 percent of the students who participated preferred the traditional face-to-face methods and a blended lab format, while 30.4 percent preferred online—furthermore, over 86% percent of the faculty who taught the course preferred face-to-face teaching. Unlike the students, 100% of faculty members opposed teaching the course online. Like students, faculty also find that adding labs to face-to-face is essential as it enhances the learning and teaching experience.

Learning Styles and Students' Active Engagement in Online Environments

Several studies have explored the effectiveness of online education. However, a few have exclusively focused on students' active engagement in online environments. Researchers agree on the importance of giving students a voice in education. Students should be encouraged to express themselves to learn more effectively and efficiently. Vygotsky's social constructivist theory (1978) suggests that teachers should use cooperative learning exercises where more skillful peers help less competent learners improve and develop. Vygotsky believed that cognitive development stems from social interactions where the More Knowledgeable Other (MKO) guides the learner within the Zone of Proximal Development (ZPD). Mcleod (2018) explains that the MKO need not be a person but must have (or be programmed with) more knowledge about the topic being learned than the learner does. However, engaging students is not always easy, primarily when the course is delivered online. Several researchers (Francis et al. (2009); Gulbahar & Kalelioglu, 2010; Bedenlier et al., 2020) have investigated the potential of technology to provide interactivity and enhance students' engagement in active learning environments.

Gulbahar and Kalelioglu (2010) conducted a case study with 20 students taking a "Distance Education" course designed in a blended way at a university in Turkey to explore the use of instructional techniques in online discussions. Their study used two instructional techniques for active learning, namely "Brainstorming" and "Six Thinking Hats, " to evaluate their effectiveness in the online learning environment. Discussion groups were created for students to discuss a given topic constructively through collaboration. The study's results revealed that both techniques can successfully be used in online environments. However, their practical use depends mainly on the management skills of the moderator rather than the specific features of the online environment. They concluded that adapting different discussion-based instructional techniques can be effectively done in online environments.

Bedenlier et al. (2020) explored how educational technology can enhance student engagement in a systematic literature review synthesizing 42 peer-reviewed arts and humanities articles published in language learning between 2007 and 2016, mainly in East Asian countries. They discovered that although further research is needed on online collaboration, educational technology supports student engagement. Blogs, mobile learning, and assessment tools are indeed very effective at promoting engagement. However, caution and education on how to use technology are needed, as any use not underpinned by effective and informed pedagogy can also lead to students feeling overwhelmed and disengaging from learning.

Wang (2010) tried to understand the contribution of ICT tools to student learning and learners' engagement. He analyzed students' online utterances and offline interactions to determine the extent of collaborative learning among students from two colleges. Results show that implementing ICT tools in blended learning promotes social interaction and engagement among students; however, it does not automatically facilitate students' adoption

of active learning strategies. The issues students faced were divided into five categories: struggling with platform operations, handling technical problems, passive attitudes towards the procedure, tense class atmosphere, and task engagement. Based on the findings, he recommended instructors consider students' technical and learning competencies for effective interaction in both online and offline settings.

Teaching Writing Online: A Big Challenge

Most undergraduates consider writing to be the most challenging macro-skill to master. Nunan (2003) stated that it is quite an exertion to produce a compelling piece of writing for all English learners, including those who use English as their native language. However, all learners must acquire advanced academic writing skills as they may be major catalysts in enhancing overall academic performance and success in higher education. Despite the complexity and struggle involved in writing, college students are compelled to use writing as the primary means of professional communication with their instructors, college authorities, and peers, which may increase writing anxiety. Rezaei and Jafari (2014) suggest that such anxiety is due to weak linguistic competence, low personal confidence, high or unrealistic expectations, and, more importantly, the fear of negative feedback. Such anxiety may result in just one or two participants dominating discussions and communication in a face-to-face classroom. At the same time, this can take a positive turn in a virtual classroom setup, which tends to be more learner-centered and lends itself to more balanced learner participation.

Helping students acquire effective writing skills in face-to-face classes can be very challenging. Therefore, instructors disagree on the effectiveness of teaching writing online, especially teaching first-year writing to speakers of other languages online. In response to this issue, Francis et al. (2009) examined whether writing skills could be taught to post-secondary students online and what student perceptions of such a learning process were like. They conducted a pilot study of the modules—called *Scribe Hero*—in the Fall of 2017. An analysis of the data indicates that undergraduate students' writing skills improved after engaging in the online modules. The survey results showed that students appreciated and enjoyed the flexibility and format of online learning to develop writing skills. Students mostly enjoyed the game-based elements and videos embedded in the modules and the feedback they were receiving from the instructor. Overall, participants identified three critical aspects for an effective online learning experience: the incorporation of competency-based elements, the compatibility and user-friendly nature of the technology, and the direct applicability of taught skills rather than remedial writing instruction.

Storch (2005) observed in her studies that peer scaffolding improved the writing skills of non-native English learners. Students enjoy working on their drafts multiple times when they get feedback from their peers. Cho and Mac Arthur (2010) pointed out that learners improved in writing their drafts when they got feedback from several of their classmates rather than just from a single source, which often is the instructor in a traditional classroom.

Their study revealed that virtual classrooms enhanced collaborative learning and increased learner participation, improving overall academic grades. However, this was not considerable as the courses ran only briefly. As Vygotsky (1978) explained in his cognitive development theory, learners develop a more logical, systematic, and rational concept when discussing with their peers and instructors.

Lentz and Fontcha (2021) believe that lecturers should take advantage of students' interest in technology to teach academic writing online. According to them, blended learning can help improve academic writing in English as the language of learning and teaching in most South African Higher institutions. The findings of the study they conducted on teaching English language Academic Writing at the Cape Peninsula University of Technology (CPUT) revealed that blended learning is needed to make first-year students understand the importance of structuring their work. They strongly recommend a combination of traditional teaching methods and virtual teaching and learning to enhance students' writing skills.

3. Methodology

The setting for this study is a higher education institution located in the United Arab Emirates. This institution, characterized by its diverse student population and progressive educational approaches, offers a range of courses, including an undergraduate health science degree program. The specific focus within this setting is on an English writing course, which is a part of the general requirements for this degree program. Three distinct instructional environments within this institution form the core of the study's setting:

1. **Online Learning Environment:** Students engage with the course entirely through digital platforms. The interaction between instructors and students, as well as among students, occurs via tools such as Blackboard Collaborate and Microsoft Teams. This setting represents a remote learning experience where online course materials, discussions, and assessments are conducted.
2. **Blended Learning Environment:** This format combines elements of online and face-to-face instruction. Students in the blended learning sections of the English writing course experience a mix of traditional classroom interactions and online activities. This setting offers a hybrid model where technology and in-person teaching methods are integrated.
3. **Face-to-Face Classroom Setting:** The traditional classroom environment constitutes the third setting. Students and instructors interact in person in this format, following a standard academic schedule. Lessons are delivered, and assessments are conducted within the physical confines of the classroom.

The study spans the academic year, encompassing regular and more intensive summer semesters. This period allows for a comprehensive observation of student performance and engagement across the different instructional formats. The diversity in course delivery within

the same institution and program provides a unique opportunity to compare the impacts of these varied instructional settings on student outcomes in a controlled and consistent academic environment.

The research design used in the study is a Quasi-Experimental Design. It aimed to compare the outcomes across the three instructional formats, making it a comparative study. It utilized a three-group comparison model to investigate the impact of different instructional formats (online, blended, and face-to-face) on student performance, as measured by course grades and completion rates. The study involved an independent variable (type of Instruction) with three levels (online, blended, and face-to-face instruction) and two dependent variables (course grade and completion rate). Descriptive and inferential statistics were computed using the Statistical Package for the Social Sciences (SPSS) version (v21.0).

Data collection occurred from September through July. Course and section numbers were used to verify students' enrollment in online, blended, or face-to-face courses. Grades and completion data were collected at the end of each semester. Two instruments were used to collect data necessary for addressing the research questions concerning the effectiveness of online, blended, and face-to-face instructional formats in an English writing course:

1) Instructors' Grade Reports:

A comprehensive record was maintained by course instructors detailing each student's academic performance in their respective sections. The grades include assessment scores such as note-taking, reading comprehension tests, written essays, oral presentations, and final projects. The primary purpose of these reports is to provide detailed insights into students' academic achievements across different instructional formats. This instrument addresses the first research question, which compares course grades among students in online, blended, and face-to-face classes. The grades from the reports were statistically analyzed using descriptive statistics and inferential analysis to identify any significant differences in academic performance across the three instructional formats.

2) Course-Withdrawal Reports:

The course coordinator generates these reports and includes data on student withdrawals from the course. It lists the withdrawn students, their respective instructional formats, and their withdrawal timing. The course withdrawal reports aim to provide a clear picture of student retention and completion rates in each instructional setting. These reports are crucial for addressing the second and third research questions, which explore differences in course completion rates across the three formats. The data from these reports were analyzed to calculate and compare the completion rates. Statistical tests were employed to determine if there are significant differences in the withdrawal rates among the online, blended, and face-to-face learning environments.

Both instruments are essential for providing a comprehensive understanding of how different instructional methods impact student performance and retention in the course. The combination of quantitative data from grade reports and course withdrawal reports allows for robust analysis, facilitating a deeper understanding of the educational impacts of each instructional format.

The procedures followed in the study involved several key steps, including participant selection, course delivery, data collection, and statistical analysis. Here is a summary of the procedures:

Participant Selection: The participants were a convenience sample of 396 female undergraduate students. They were enrolled in an English writing course, specifically in a health science degree program, at a targeted institution in the United Arab Emirates. The participants were between 18 and 25 years old and were from different emirates.

Course Structure and Delivery: The course, scheduled by the General Requirements Department, included three instructional components: online, blended, and face-to-face formats. Different instructors taught each format, and there was a standard course syllabus. Instructors were responsible for course materials, and students met with instructors twice or thrice a week during the semester. Online course delivery involved using Blackboard Collaborate (BBC) and Microsoft Teams (MST) for synchronous and asynchronous communication, group work, presentations, video/audio chat, and real-time quizzes. The blended course included recorded oral presentations, while face-to-face sessions followed the academic schedule with additional office hours for tutorial sessions.

Student Interaction and Assessment: In the online format, students interacted with lecturers using various functions on Blackboard, such as discussion forums, audio-video chat, breakout groups, and online quizzes. Assessment included note-taking, a reading comprehension test, an essay with multiple drafts, and a final project, all graded by the instructor. Both blended and online classes involved similar roles for lecturers, with blended classes requiring a recorded oral presentation. Face-to-face classes included note-taking, a reading comprehension test, two essays with multiple drafts, and an oral presentation, all graded by the course instructor.

These procedures were designed to systematically investigate the impact of different instructional formats on student outcomes in the context of the English writing course within a health science degree program.

4. Findings

The research was designed to investigate potential differences in students' grades and completion rates across distinct instructional modes, including face-to-face, blended (face-to-face and online), and online classes. Three university-level groups were involved, with 396

students in the face-to-face group, 203 in the blended group, and 72 in the online group. Notably, only the grades of students who completed the course were considered in the analysis. The evaluation employed independent t-tests, enabling a nuanced exploration of mean differences between the groups. The study followed a well-structured approach, commencing with a presentation of descriptive and inferential statistics, addressing specific research questions through t-test analysis, and concluding with a concise summary of results.

The research questions primarily sought to determine if significant differences existed in students' achievement, measured by their grades, across the various instruction modes. Descriptive analysis was initially conducted to showcase means, minimum and maximum scores, standard deviations, effect sizes, and ranges for each mode. This approach followed descriptive statistics methodologies outlined by D'Souza et al. (2017). Subsequently, inferential statistical analysis, specifically independent t-tests, was employed to ascertain whether notable differences existed between the groups. The data analysis was facilitated using the Statistical Package for the Social Sciences (SPSS) Version (v21.0).

In addition to examining grades, completion rates were also calculated for each instructional mode, with percentages derived using a basic Excel sheet. The study's comprehensive structure, involving both descriptive and inferential analyses, aims to provide a general understanding of how different instructional modes impact students' academic outcomes. Through this systematic approach, the research contributes valuable insights to the broader field of educational research.

4.1 Descriptive Statistics

For the first procedure, descriptive statistics are presented in the following table for all three groups.

Table 1: Descriptive statistics analysis of grades for face-to-face, online, and blended Groups

Group	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>MD</i>	<i>Min scores</i>	<i>Max scores</i>	<i>R.D.</i>
Face-to-face	396	71.37	2.86	3.12	13	93	80
Online	72	75.66	3.05	4.29	42	91	49
Blended	203	68.25	12.0381	7.41	14	95	81

Note. *N* = number of participants in each group; *M* = mean; *S.D.* = standard deviation, *md* = difference between the two means; *mis* = minimum score; *mas* = maximum score; *rd* = range difference.

In the face-to-face group, comprising 396 students, the mean grade was 71.37, with a standard deviation of 2.86. The minimum and maximum scores were 13 and 93, respectively, resulting in a substantial range difference of 80. The mean grade for the online group (72

students) was 75.66, with a slightly higher standard deviation of 3.05. The range difference was 49, indicating a narrower spread than the face-to-face group. The mean grade in the blended group (203 students) was 68.25, and the standard deviation was notably higher at 12.0381. The range difference for this group was 81, showing a broad distribution of scores.

Comparatively, the mean differences between the face-to-face and online groups, online and blended groups, and face-to-face and blended groups were 3.12, 7.41, and 4.29 points, respectively. This suggests a significant variance in mean grades between online, face-to-face, and blended groups.

While the face-to-face and blended groups underperformed compared to the online group, it is noteworthy that the face-to-face group exhibited a substantial range difference, indicating a wide spectrum of scores. However, this variability was not mirrored in the standard deviation, where the online group displayed greater diversity, challenging the typical correlation between range difference and standard deviation. The large standard deviation for the blended group aligns with its extensive range, confirming heightened variability.

In summary, the descriptive statistics offer insights into the distribution of grades across instructional modes, highlighting variations in mean scores, spread, and diversity within each group.

4.2 Inferential Statistics

Three t-tests were conducted in order to compare the three samples. The following subsections each t-test and interpret the findings in the context of the research questions.

Face-to-face and Online Group t-test

An unpaired t-test was conducted to assess the variance between the scores of the two samples. The following Table 2 contains the results of the inferential statistics:

Table 2: Face-to-face and Online Groups Inferential Statistics

Group	n	M	Md	df	t	p	Cohen's d
Face to face	396	71.37		5	1.9122	.1141	1.45
Online	72	5.66	4.29				

Note. n = number of participants each group; m = mean; md = difference between the two means; df = degrees of freedom; t-value = SPSS value from t-test; p = SPSS generated probability; Cohen's d = effect size

Three t-tests were conducted in order to compare the three samples. Face-to-face and Online Group unpaired t-tests were conducted to assess the variance between the scores of the two samples. Applying the statistical significance decision rule and noting that the p-value is

0.1141 (greater than the alpha value of 0.05), the difference in means of 4.29 cannot be considered statistically significant. However, the p-value only indicates the likelihood that an observed finding may have occurred by chance, not reflecting the effect's magnitude (Ho, Tumkaya, Aryal, Choi, and Claridge-Chang, 2019). As such, the above findings need to be supported by effect size calculation to evaluate the magnitude of the difference between the two samples (Greenland, 2019).

Also, unlike the t-tests, the effect size is not dependent upon the sample size (Green & Salkind, 2010), and they can provide a more accurate reflection of the differences between the samples of different sizes. Cohen's d was also calculated to support (or contradict the p-value generated by the t-test). Cohen's d of 1.45 indicates a significant difference between the online and the face-to-face group scores (Johnson & Christensen, 2011), with the online group delivering greater value to the students and translating into better grades.

This implies that although the statistical test was insignificant, the observed difference between the face-to-face and online groups may still have practical importance. The higher mean score in the online group suggests a potential educational value associated with online Instruction, highlighting the need for further exploration into specific aspects of instructional design, engagement, or learner characteristics that may contribute to variations in student performance across different instructional modes.

Online and Blended Groups t-tests

The online group's grades and blended group grades were subjected to comparison using t-test analysis.

Table 3: Online and Blended Groups Inferential Statistics

Group	n	M	Md	df	t	p	Cohen's d
Online	72	75.66	7.41	5	1.0195	0.3547	0.844
Blended	203	68.25					

Note. n = number of participants each group; m = mean; md = difference between the two means; df = degrees of freedom; t-value = SPSS value from t-test; p =SPSS generated probability; Cohen's d = effect size

A more detailed understanding of the findings was sought despite the non-significant p-value of 0.3547, which exceeds the conventional threshold of 0.05, indicating that the observed difference in means of 7.41 points between the online and blended groups is not statistically significant. Recognizing the limitation of p-values in providing insights into the magnitude of effects, additional analyses were conducted to shed light on the practical significance of the observed differences. An essential aspect of this investigation involved calculating effect size, specifically employing Cohen's d, to comprehensively evaluate the disparities between the online and blended groups. Effect size is particularly valuable when dealing with samples of

varying sizes, providing a more accurate depiction of the practical significance of observed differences (Greenland, 2019; Green & Salkind, 2010). Cohen's *d* of 0.844 revealed a medium-level difference between the two groups' scores, signifying a substantial and meaningful distinction.

This medium effect size suggests that, although the statistical test did not reach significance, the observed 7.41-point difference in mean scores holds practical importance. It implies that the online instructional mode may deliver greater educational value to students, potentially manifesting in better grades. This interpretation underscores the importance of considering statistical significance and effect size in research analysis, as statistical significance alone may not capture the full scope of meaningful differences. Therefore, while the *p*-value did not support statistical significance, the medium effect size provides valuable insights into the educational impact of different instructional modes, prompting further exploration into the factors contributing to these observed differences. Further exploration into the factors influencing performance differences between online and blended groups is warranted, as it could provide valuable insights for instructional design and delivery strategies. In summary, while the statistical test did not reveal significance, the medium effect size suggests the need for a more detailed interpretation and continued investigation into the complexities of instructional modes and their impact on student outcomes.

Face-to-face and Blended Groups t-tests

Table 4: Face-to-face and blended Groups Inferential Statistics

Group	n	M	Md	df	t	p	Cohen's d
Face-to-face	396	71.37	3.12	6	0.5046	0.6318	0.358
Blended	203	68.25					

Note. *n* = number of participants each group; *m* = mean; *md* = difference between the two means; *df* = degrees of freedom; *t*-value = SPSS value from *t*-test; *p* = SPSS generated probability; Cohen's *d* = effect size

The *t*-test comparing mean scores between the face-to-face and blended groups, as displayed in Table 4, revealed interesting insights. The face-to-face group, consisting of 396 participants, exhibited a mean score (*M*) of 71.37, while the blended group, comprising 203 participants, had a mean score of 68.25. The calculated difference in means (*Md*) between these groups was 3.12. However, the *t*-test results indicated a non-significant *p*-value of 0.6318, surpassing the standard alpha level of 0.05, suggesting that the observed difference in mean scores is not statistically significant at the 0.05 significance level. The accompanying Cohen's *d* effect size,

calculated at 0.358, indicated a slight practical difference between the face-to-face and blended groups.

The absence of statistical significance in the t-test results ($p\text{-value} > 0.05$) implies that the observed 3.12-point difference in mean scores between the face-to-face and blended groups is not deemed statistically meaningful. However, delving deeper into the practical implications, the small Cohen's d effect size of 0.358 suggests a subtle yet practical difference in performance between these instructional modes. While statistical significance remains elusive, this effect size implies that there may be negligible distinctions in how students perform in face-to-face versus blended learning environments.

The practical significance of this small difference should not be dismissed, as it may indicate unique characteristics associated with each instructional mode. Further exploration into specific factors influencing performance differences, such as engagement strategies, instructional content, or student preferences, could provide valuable insights. This finding underscores the importance of considering statistical significance and effect size when interpreting research results. It prompts educators and researchers to explore the intricacies of face-to-face and blended learning to optimize instructional approaches and enhance student outcomes.

4.3 Completion Rate

The analysis for the completion rate was conducted using Excel and is presented in Tables 5, 6, and 7. The number of enrolled participants is mentioned in column 2, followed by the number of those who completed the semester fully. The total number of participants that completed the course is highlighted in red, and its percentage is calculated to find the completion rate using the formula: $\text{Rate of Completion} = (\text{Total Number of Students that Completed the Course} / \text{Total number of Students that had enrolled in the course}) * 100$

The completion rates for each group provide valuable insights into students' academic success across different instructional modes.

Table 5: Completion Rates for face-to-face Group

FACE TO FACE		Enrolled	Completion
Campus 1	AD	155	147
Campus 2	AA	141	135
Campus 3	AJ	84	74
Campus 4	AG	41	40
Total		421	396
Rate of completion (% completed out of enrolled)		94.06175772	

The face-to-face group in Table 5 shows that across the various campuses and courses, 421 students were enrolled in face-to-face classes. The completion rates for each course within the face-to-face group range from 90.24% to 95.12%, contributing to an overall completion rate of 94.06%. Notably, Campus 4 (A.G.) had a slightly lower completion rate (97.56%) than other campuses, indicating a potential area for further investigation.

Table 6: Completion Rates for Online Group

Campus	Enrolled	Completion
AD	30	25
AA	22	18
AJ	29	29
AG	0	0
Total	81	72
Rate of completion (% completed out of enrolled)	88.88888889	

The Online Group in Table 6 shows the online group with a total enrollment of 81 students, observed completion rates ranging from 81.82% to 100% across different courses.

Table 7: Completion Rates for Blended Group

BLENDED_{Ca} Campus	Enrolled	Completion
AD	70	66
AA	72	66
AJ	60	52
AG	19	19
Total	221	203
Rate of completion (% completed out of enrolled)		91.85520362

The blended group in Table 7, comprising 221 students, displayed completion rates ranging from 86.67% to 100% across courses. Like the online group, Course AG in the blended format had a 100% completion rate, suggesting successful outcomes for students in that particular course. While completion rates offer a snapshot of academic success, it's crucial to consider additional factors influencing student outcomes, such as course content, instructional strategies, and student engagement. Exploring the reasons behind variations in completion rates can guide educators and administrators in optimizing instructional approaches and support mechanisms to enhance overall student success.

5. Discussion and Implications

The research aimed to investigate the differences in students' performance and completion rates across three instructional modes: face-to-face, online, and blended in an English writing course in the United Arab Emirates. The findings provide insights into the implications of these instructional modes on student outcomes, addressing the research questions outlined in the study. The analysis of course grades across the three instructional modes revealed interesting patterns. While the online mode showed a slightly higher mean grade than face-to-face and blended modes, the differences were not statistically significant. This suggests that, from a quantitative perspective, the instructional modes did not significantly impact students' grades. Nevertheless, the multifaceted dimensions of student success might warrant a qualitative inquiry.

The completion rates provided a more tangible distinction among the instructional modes. The face-to-face mode exhibited a significantly higher completion rate (94.06%) compared to the online (88.88%) and blended (91.85%) modes. This indicates that a traditional face-to-face setting might increase the likelihood of students successfully completing the course.

The above descriptive statistics, inferential statistics, and completion rate calculations were interpreted and explained to answer the two research questions.

Research Question 1: "What is the difference in students' first-year composition grades for the face-to-face, online, and blended modes of instruction?"

The detailed examination of Tables 2, 3, and 4, focusing on the t-tests and effect size calculations, revealed important insights into the comparative performance of students in face-to-face, online, and blended learning modes in the context of first-year composition grades.

In the Face-to-Face vs. Online, Table 2 shows a t-test between face-to-face and online groups, which resulted in a p-value of 0.1141, indicating a lack of statistical significance. This suggests that the observed 4.29-point difference in mean grades is insufficient to assert a significant performance variation between these groups. While suggesting a large difference, the effect size (Cohen's d) of 1.45 should be interpreted cautiously, as it does not reach statistical significance. Thus, it is challenging to determine which group performed better conclusively, as the observed differences are not statistically robust.

Meanwhile, the Online vs. Blended in Table 3 shows the t-test between online and blended groups yielded a p-value of 0.3547, again indicating a lack of statistical significance. While numerically larger, the 7.41-point difference in mean grades is not deemed statistically meaningful. The effect size (Cohen's d) of 0.844 suggests a medium-level difference, but asserting which group performed better without definitive statistical significance becomes challenging.

Meanwhile, the Face-to-Face vs. Blended in Table 4 shows the t-test comparing face-to-face and blended groups, which resulted in a p-value of 0.6318, indicating no statistical significance. The 3.12-point difference in mean grades and a Cohen's d of 0.358 (small effect size) suggests a lack of practical significance. Therefore, it is challenging to discern a clear performance superiority between face-to-face and blended groups.

The detailed analysis does not provide conclusive evidence regarding which instructional mode performed better regarding first-year composition grades. The lack of statistical significance in the t-tests and the modest effect sizes highlight the challenges in definitively establishing performance differences among face-to-face, online, and blended learning modes.

Research Question 2: "What is the difference in students' completion rates for the face-to-face, online, and blended modes of instruction?"

The completion rates, as depicted in Tables 5, 6, and 7, illuminate the distinct patterns of student success across face-to-face, online, and blended instructional modes. These completion rates signify the relative proportions of students who successfully concluded their respective courses within the sampled semesters. The face-to-face instructional mode exhibited a notably high completion rate of 94.06%, indicating that most students enrolled in this modality successfully navigated the course requirements and assessments.

In contrast, the online instructional mode reported a slightly lower completion rate of 88.88%. This suggests that, despite the flexibility offered by online learning, a proportion of students faced challenges or barriers that may have impacted their ability to complete the

course successfully. Meanwhile, the blended instructional mode, incorporating elements of both face-to-face and online learning, yielded a completion rate of 91.85%. This falls between the rates observed for face-to-face and online modes, indicating a middle ground regarding student success.

The discernible difference in completion rates among the instructional modes underscores the potential influence of the mode of delivery on student engagement, motivation, and overall success. Factors such as the nature of interactions with instructors, the level of peer collaboration, and the adaptability of the instructional format may contribute to these variations. The superior completion rate in the face-to-face setting implies that the physical presence and structure of traditional classroom environments could positively impact student outcomes.

While completion rates alone do not provide a comprehensive understanding of the learning experience, they serve as valuable indicators of the effectiveness of instructional approaches in facilitating student progression through academic requirements. Further investigation into each mode's challenges and advantages could offer deeper insights into optimizing instructional strategies for enhanced student success.

The findings suggest that, while grades may not vary significantly across instructional modes, completion rates exhibit notable distinctions. This has practical implications for educators and institutions aiming to optimize student success. Traditional face-to-face settings foster higher completion rates, emphasizing the potential benefits of in-person interaction, structured learning environments, and instructor-student engagement.

In summary, while the statistical test did not reach significance, the substantial effect size indicates the need for a nuanced interpretation. The findings suggest that online Instruction may contribute to higher grades, prompting further exploration and consideration of various factors influencing student performance in different instructional modes.

6. Conclusion

To conclude, this research study aimed to unravel the impact of three instructional modes, face-to-face, online, and blended, on students' performance and completion rates in an English writing course within the context of the United Arab Emirates. By carefully analyzing grades and completion rates, the study addressed particular research questions, unveiling the intricate dynamics of student success within varied learning environments. Based on the findings, the following should be considered:

- **Statistical Significance:** Although the t-test did not reveal a statistically significant difference, it is crucial to consider the effect size.
- **Effect Size:** A large Cohen's d (1.45) indicates a meaningful difference despite the lack of statistical significance. This implies that the difference may not be statistically robust, but it could have practical importance.

- **Practical Significance:** Educators and researchers should consider both statistical and practical significance. In this context, the observed difference might still be of practical importance, potentially influencing instructional decisions.
- **Potential Educational Value:** The higher mean score in the online group suggests that online Instruction might be associated with better overall performance. However, caution is needed in drawing definitive conclusions, and further investigation into specific aspects of instructional design, engagement, or learner characteristics is warranted.

7. Limitations and Future Directions

The research is confined to a specific course and demographic, limiting the generalizability of findings. Future research could delve into qualitative aspects, exploring student experiences, preferences, and challenges associated with different instructional modes. Furthermore, exploring distinct pedagogical strategies within each mode could offer a more detailed understanding of the factors that impact student outcomes. This research contributes valuable insights to the ongoing discourse on instructional methodologies, emphasizing the need for a balanced consideration of quantitative and qualitative factors in assessing the impact of instructional modes on student success.

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