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Measuring the Effectiveness of Internship Programs in Aligning Education with Industry during Covid-19: A Case Study

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This study aimed to analyze the effectiveness of internship programs in aligning education with industry during the COVID-19 pandemic. This research focuses on the internship outcomes of College of Communication and Media Sciences (CCMS) students in various UAE organizations. This study employs Kirkpatrick's framework and analyzes 64 student reports over ten weeks to understand the strengths and areas of improvement in aligning academic instruction with real-world applications. The research focuses on the "reaction" and "learning" constructs in the alignment of theoretical teachings with practical experiences based on Kirkpatrick's framework. The study revealed that internships offer students a chance to gain practical experience in their field of study, and the CCMS internship program helps students gain professional skills that are difficult to teach in a classroom context. The findings of this study could help academic policymakers understand the relative strengths and weaknesses of different learning areas and refine and enhance internship offerings. The study underscores the significance of assessing the practical application of university education in the workplace and the benefits of internship experiences as a mandatory component of CCMS specialization academic programmes. The research demonstrates that the internship program provides students with hands-on experience in the media and communication sectors, enabling them to interact directly with industry professionals. Additionally, this study highlights the common challenges faced by internship students, including communication with supervisors, workload management, handling tasks beyond their current skill set, navigating limited workplace resources, adjusting to unfamiliar work environments, and refining time management skills.

Keywords: internship, measurement, academic environment, academic program, learning alignment

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INTRODUCTION

The COVID-19 pandemic has had a significant impact on the workplace, with many organizations shifting to remote work setups to ensure the safety of their employees (Boury et al., 2021). As a result, many internship programs have been disrupted, and students are finding it challenging to gain practical experience in their fields of study (Aucejo et al., 2020). The traditional hands-on approach to internships, where students work alongside industry professionals, has been replaced by virtual internships, which may not provide the same level of practical experience (Shtembari et al., 2023).

Internship programs are an essential component of higher education, providing students with practical work experiences in their fields of study (Hora et al., 2021). However, assessing how university education is applied in the workplace based on internship programs can help academic policymakers understand the relative strengths and weaknesses of different learning areas.

The College of Communication and Media Sciences (CCMS) offers internship programs as a required educational component of its specialization academic programs. The CCMS internships help students gain professional skills that are difficult to teach in a classroom context. However, the effectiveness of the CCMS internship program in aligning education with industry during the pandemic remains uncertain.

Therefore, this study aims to analyse the effectiveness of internship programs in aligning education with industry during the COVID-19 pandemic. By analysing internship outcomes, this study aims to provide insights into the effectiveness of the CCMS internship program and offer recommendations for academic policymakers to refine and enhance internship offerings. This research focuses on the internship outcomes of CCMS students in various UAE organizations. This study employs Kirkpatrick's framework to understand the strengths and areas of improvement in aligning academic instruction with real-world applications (Nicho et al., 2023).

Related Works

Brown, Gavin & Chai, Constance. (2012) applied Kirkpatrick's framework to evaluate the effectiveness of a leadership training program over time. It assessed participant reactions, knowledge acquisition, behavioral changes, and organisational outcomes to determine the long-term impact of the training. Heydari, M & Taghva, Fatemeh & Amini, Mitra & Delavari, Somayeh. (2019) utilised Kirkpatrick's framework to assess the effectiveness of a diversity training program implemented in healthcare settings. It examined participant feedback, changes in attitudes and behaviors, and the impact on patient outcomes and organisational culture.

According to Hynie et al. (2011), CCMS emphasizes service learning during internships, allowing undergraduates to blend academic knowledge with practical experiences. However, internship students often encounter challenges, such as supervisory communication, managing workloads, addressing tasks beyond their expertise, navigating limited workplace resources, adapting to unfamiliar work settings, and honing time management skills (Harvey & Slee, 2010).

According to Kirkpatrick (1959), his framework is useful for evaluating the effectiveness of CCMS internships, which aim to align academic knowledge and practice in a ten-week professional environment. Kirkpatrick's framework includes four levels to evaluate training effectiveness: reaction, learning, behavior, and results - to evaluate training effectiveness (Kirkpatrick, 1994). Experience can be grouped into "consumptive metrics," which measure the results based on the learning resources consumed. This study aims to determine whether the resources learned during the undergraduate course are utilized during the internship. We use Kirkpatrick's questions at both levels to answer this research question (Kirkpatrick, 1959).

According to Kirkpatrick, experiential learning occurs at four levels: reaction, learning, behavior, and results. Reaction and learning are consumptive metrics, as they relate to the learning resources consumed during the internship, whereas impact metrics relate to outcomes (Figure 1). The most effective experiences for improving learning are live-case study projects and internships (Miles & Huberman, 1994). In Kirkpatrick's framework, experiential learning can be defined as learning from experience or education by doing (Lewis & Williams, 1994).

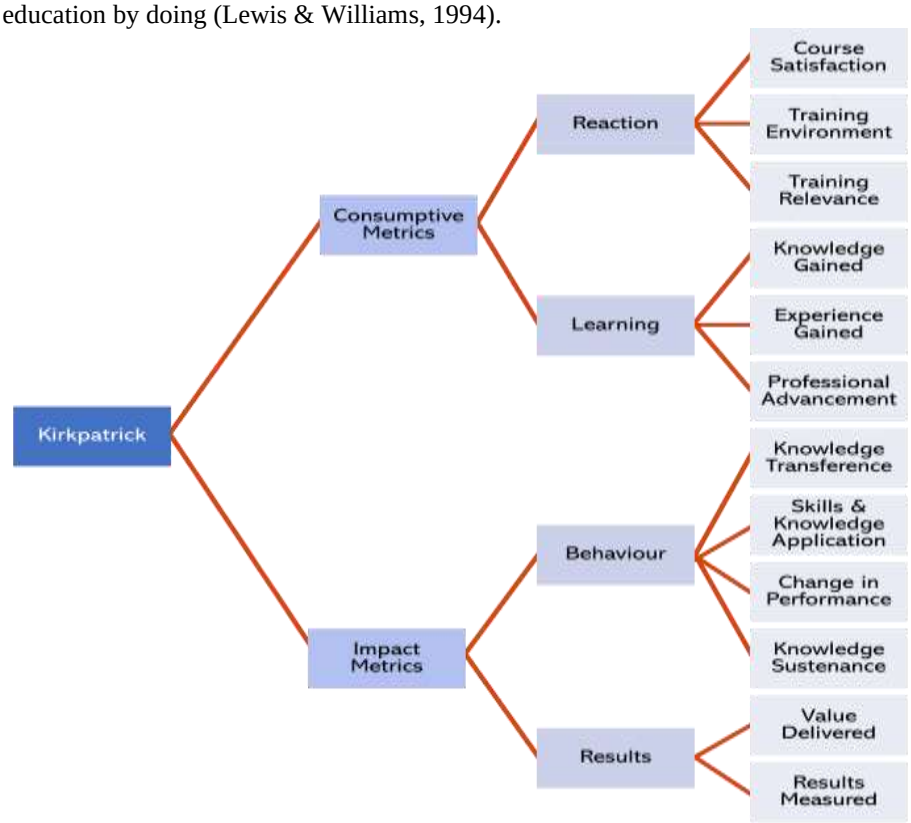

Figure 1
Measurement of consumptive and impact metrics (adapted from Kirkpatrick, 1959)

Experiential Learning Perspective of Internship

Educators are increasingly using experiential learning pedagogy to improve learning (knowledge and skills), and two highly effective experiential techniques are live-case study projects and internships (Green & Farazmand, 2012). Practical work placement at the end of a degree program has long been an important part of experiential learning in CCMS. Thus, internships are becoming an increasingly important form of experiential learning (Bird et al, 2015), involving concrete experience, reflective observation, conceptualization, and active experimentation abilities (Kolb, 2014). According to an experiential perspective, "learning is a construction of knowledge through the transformation of experience' (Kolb & Kolb, 2009). Thus, our research aims to identify the knowledge created through internships in the CCMS.

Integrating Learning into Practice

According to Knouse and Fontenot (2008), internship experience provides students with an advantage in the job market. Undergraduate internships are among the several high-impact practices (HIPs) associated with deep learning, self-reported gains, and effective instructional practices. HIPs have a variety of characteristics, including engaging in active learning practices, facilitating learning outside the classroom, requiring meaningful interactions between faculty and students, and encouraging collaboration with others (Matteo & You) (Docherty et al.). Internships are "an opportunity for intensive work-based exposure to a broad range of operations within a company" (Crossley, Jamieson, & Brayley, 2007). Internships can also increase interview requests, job opportunities, and salaries (Nichols, 2016; Nunley et al., 2014). According to research-based recommendations for internships, mentors should provide clear assignments with frequent feedback, expose interns to multiple parts of the profession, and treat them respectfully (Rothman, 2007).

The overall aim of this research is to assess whether the resources students learn in the first three years of study are utilized during the internship.

To fully and objectively determine the extent of knowledge absorption or the application of learned knowledge in the internship leads us to the study's focus on the following research question.

RQ

To what extent are learning resources (learned during the undergraduate course) consumed during the internship?

METHOD

Following the principles outlined by Krippendorff (2018), the researchers selected texts with identifiable meanings for content analysis. Quantitative research provides insights into human conditions in various contexts and situations (Bengtsson, 2016).It is important to acknowledge that not all students may fully absorb the skills learned due to challenges encountered during the learning and internship process and in practice.

Data Collection

The research has been approved by the Board of the Ethical Committee of the College of Communication and Media Sciences, Zayed University. Informed consent was obtained from all the participants involved in the study, and they were assured that their privacy and confidentiality would be protected throughout the research process. The participants were also informed about the purpose of the study and the potential benefits of their involvement.

We employed an inductive reasoning method that starts with specific observations and then moves to broad generalizations based on these observations. The researchers analyzed the internship reports of 64 students at College of Communication and Media Sciences who completed on-site internships during the spring semester of 2022. Content analysis, a method for evaluating the content of observed communications, has been used for this purpose (Krippendorff, 1980). Content analysis allows researchers to sift through large amounts of data and to examine trends and patterns in documents (Stemler, 2000).

This study analyzes consumption metrics, such as course enjoyment, training relevance, and training context, as well as the impact on learning, experience, and professional advancement. The integration of knowledge into practice is a key indicator of the success of an internship program across the different domains (Figure 2).

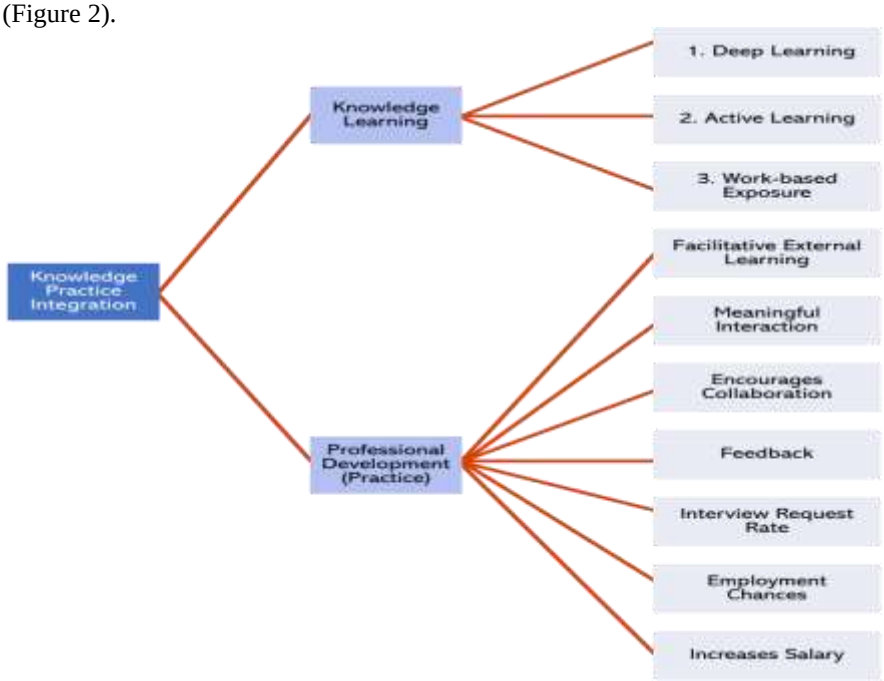

Figure 2
Integrating learning into practice

Data Analysis

In this study, we used a quantitative approach to gain a holistic understanding of the internship process and conducted inductive data analysis based on predetermined constructs. Our article describes the effectiveness of internships in CCMS communication and media study courses in terms of knowledge and practice. The authors used statistical analysis software to analyze the final internship reports of 64 university students who completed the 10-week program. We identified and categorized declarative statements made by interns using inductive nodes (two constructs) and their sub-nodes (six themes), following Miles and Huberman's (2014) guidelines for quantitative data analysis. We evaluated the node strength based on word count and frequency.

Table I summarizes these questions into three inductive themes for the reaction and three pieces for learning (Figure 1).

Table 1
Evaluation of consumptive metrics, namely ‘reaction’ and ‘learning

Reaction	Learning
● Can you describe your overall experience with the internship program? ● What did you enjoy most about the program? ● What did you find challenging about the program? ● How did the program meet or not meet your expectations? ● How do you think the program could be improved?	● What new knowledge or skills did you gain from the internship program? ● How did the program help you to better understand your field of study? ● Can you provide an example of how the program helped you apply what you learned in a real-world setting? ● How did the program help you to develop professionally? ● Did you encounter any obstacles or challenges during the program, and if so, how did you overcome them?

FINDINGS

The CCMS bachelor's program aims to prepare students to become bilingual leaders in the UAE, Gulf region, and global community, emphasizing the importance of media and communication in local and global cultures, information literacy, language competency in Arabic and English, and ethical communication. During and after the 10-week internship program, the students were evaluated using formative and summative assessment methods. Formative assessment includes weekly reports and a site supervisor survey, whereas summative assessment includes a pass/fail grade and an evaluation of satisfaction and performance. The assessment indicated that a successful CCMS internship student should possess essential skills, including proficiency in written and spoken English and Arabic, interpersonal and communication skills, video production, multimedia skills, new media skills, theoretical knowledge in their specialization, professional conduct, and the ability to meet deadlines, work with diverse groups, and work both independently and collaboratively. The quantitative data

collected from the internship reports was analyzed using statistical analysis software, a widely used tool for quantitative data analysis. The data was transcribed and coded by two independent coders to quantify common themes and patterns. The coded data was then analyzed using the software to determine the frequency and significance of these themes and patterns within the data. It is important to note that the results presented in the study are based on the analysis of quantitative data, which is inherently objective and statistically validated.

Measuring 'reaction' and 'learning' based on coverage.

Appendix 1 illustrates the extent of coverage of the themes under the construct's 'reaction' and 'learning. 'After analysing the data out of the three themes in 'reaction' (summative value [Total] in the last row), 'training environment' scored high with a value of 106.75 coverage, followed by 'training relevance' with a coverage of 104.2. At the same time, 'course satisfaction' was the least covered, with coverage of only 91.3. From a 'learning' perspective, out of the three themes, 'knowledge gained' scored very high with a value of 164.53 coverage, followed by 'experience gained' with coverage of 145.92, while 'advancement' was the least covered with coverage of only 47.85. In this respect, students' incremental addition of knowledge in the internship program is a favourable sign, while career advancement needs to be focused on.

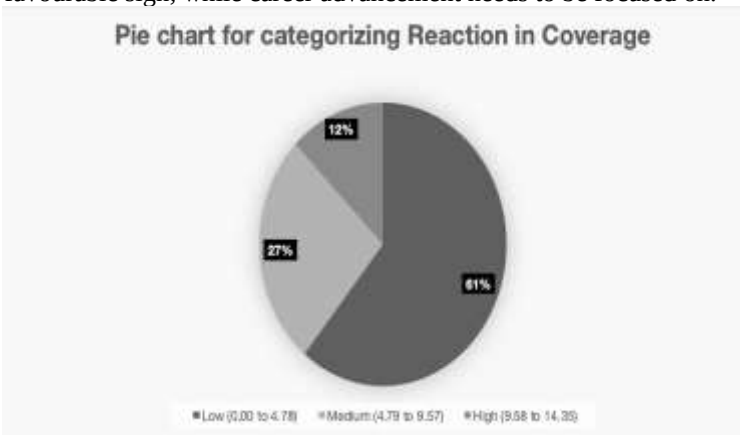

Figure 3
Pie chart for categorizing reactions in coverage

In this section, we examine the percentage of students who scored high, medium, or low on these themes and constructs. To evaluate the relative strengths of each construct and the associated themes, we used the range of 'reaction' (lowest value of 0.00 to a high value of 14.35). We categorized these into low (0.00 – 4.78), medium (4.79 – 9.57), and high (9.58 – 14.35) by separating them into three equal-value ranges. In the 'reaction' construct, we found that 12% of students scored high, while 27% scored medium and 61% scored low (Figure 3). This is an area of concern owing to the absence of a bell-shaped curve.

In a similar manner, we used the range of 'learning' (lowest value of 0.00 to a high value of 11.38). We categorized these into three equal-value ranges- low (0 – 3.76), medium (3.77 – 7.52), and high (7.53 – 11.38). From a 'learning' perspective, we found that 19% of students scored high, 23% scored medium, and 58% scored low (Figure 4). This matches with the 'reaction' construct and is an area where we must focus on to evaluate the reasons.

Figure 5 illustrates the overall comparison of 'reaction' to 'learning' from a coverage perspective. It was found that students scored relatively high on 'reaction' (54%) than 'learning' (46%). This showed that, while they enjoyed the training, the application of academics to practice was low.

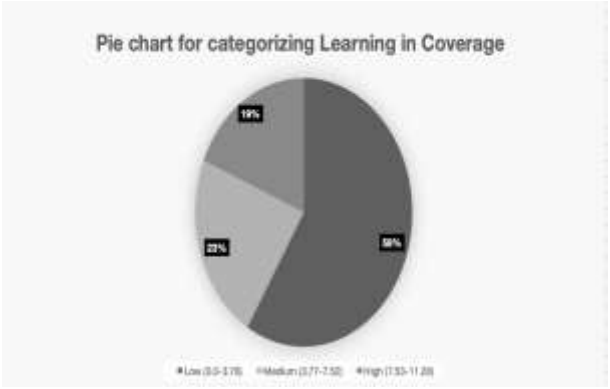

Figure 4
Pie chart for categorizing learning in coverage

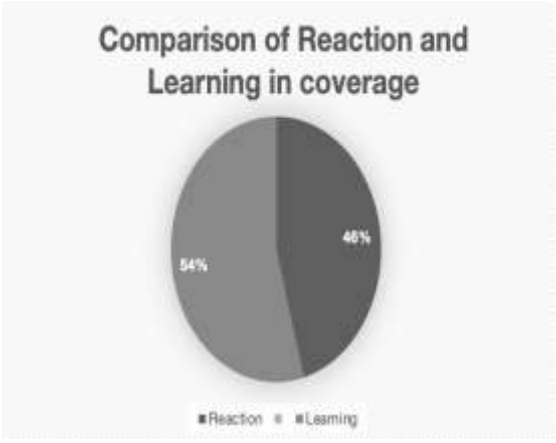

Figure 5
Pie chart illustrating a comparison of reaction to learning from a coverage perspective

Measuring 'reaction' and 'learning' based on frequency

Appendix 2 illustrates the frequency of the themes under the construct's 'reaction' and 'learning.' Regarding the three themes in 'reaction' (last row [Total] field), 'training relevance' scored a frequency value of 53, followed by 'course satisfaction' with a frequency of 56, while 'training environment' scored high, with a frequency of 60. From a 'learning' perspective, 'knowledge gained' scored very high with a frequency value of 106, followed by 'experience gained' with a frequency of 103, while 'advancement' was least covered, with a frequency of only 25. While this is a positive sign of the value of internships, we observed that it does not assist students in their career advancement. This finding correlates with measurements under coverage.

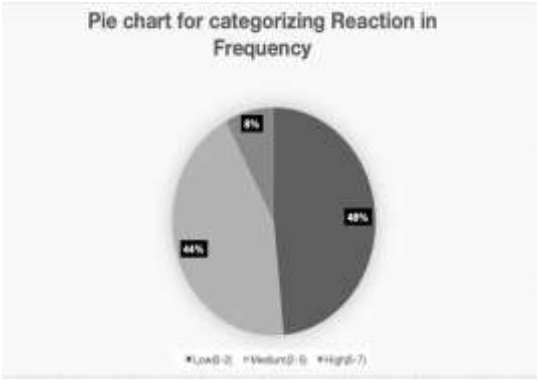

Figure 6
Pie chart for categorizing reactions in frequency

To evaluate the relative strengths of each construct and the associated themes, we used the overall range of 'reaction' (lowest value of 0– high value of 7) and categorized these into low (0–2), medium (2.1–5), and high (5.1–7) by separating them into three equal value ranges. Analyzing the 'reaction' construct from a frequency perspective, we found that 8% of students scored high on 'reaction,' while 44% scored average, and 48% achieved low (Figure 6).

To evaluate the relative strengths of each construct and the associated themes, we used the overall range of 'learning' (0–8) and categorized these into low (0-2), medium (2.1–5), and high (5.1–8) by separating them into three equal value ranges. Regarding the 'learning' construct, 16% of students scored high. In comparison, 26% scored medium, and 58% scored low (Figure7). This again reveals the need for alignment between academic concepts and the practical application of these concepts. This corresponds to the observation from coverage, where most students had low ratings for 'reaction' and 'learning.'

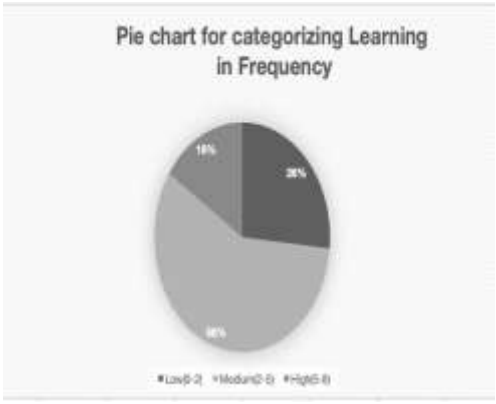

Figure 7
Pie chart for categorizing learning in frequency

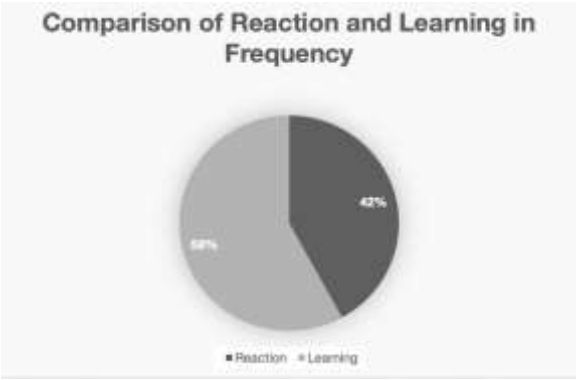

Figure 8
Pie chart illustrating a comparison of reaction to learning from a frequency perspective

Figure 8 compares 'reaction' and 'learning' from a frequency perspective. It was found that students scored higher on 'reaction' (58%) than 'learning' (42%). The correlation of coverage and frequency assists us in answering the research question proposed above "To *what extent are learning resources (learned during the undergraduate course) consumed during the internship?"*

Table 2
Shows comparison of coverage (c) with frequency(f) for two constructs

	High		Medium		Low	
	C	F	C	F	C	F
Reaction	12%	8%	27%	44%	61%	48%
Learning	19%	16%	23%	26%	58%	58%

Table 2 compares the coverage (C) and frequency (F) for the reaction and learning constructs divided into high, medium, and low levels. The percentages represent the proportion of students who rated their internship experiences at each level of coverage and frequency. For the reaction construct, 12% of the students rated their internship experience as having high coverage and low frequency, while 8% rated it as having high coverage and high frequency. 27% of the students rated their experience as having medium coverage and high frequency, while 44% rated it as having medium coverage and low frequency. Finally, 61% of the students rated their experience as having low coverage and high frequency, while 48% rated it as having low coverage and low frequency. Regarding the learning construct, 19% of the students rated their experience as having high coverage and low frequency, while 16% rated it as having high coverage and high frequency. 23% of the students rated their experience as having medium coverage and high frequency, while 26% rated it as having medium coverage and low frequency. Finally, 58% of the students rated their experience as having low coverage and high frequency, whereas 58% rated it as having low coverage and low frequency.

This study analyzed the effectiveness of internship programs in aligning education with industry during the pandemic. It focuses on the internship outcomes of CCMS students in various UAE organizations and employs Kirkpatrick's framework to understand the strengths and areas for improvement in aligning academic instruction with real-world applications. The internship program offered by CCMS has been successful in aligning education with industry during the pandemic. This study analyzed the internship outcomes of 64 CCMS students in various UAE organizations using Kirkpatrick's framework. The research focused on the "reaction" and "learning" constructs to understand the strengths and areas of improvement in aligning academic instruction with real-world applications. Reaction: In terms of the "reaction" construct, this study found that most students enjoyed their internship experience and found it useful. They appreciated the relevance of the training in their field of study and acknowledged the value of the practical experience gained during the internship. The students also provided positive feedback on the venue, style, and timing of the program. Learning: Regarding the "learning" construct, the study found that the internship program helped students gain professional skills that are difficult to teach in a classroom context. The students were able to learn what was intended to be taught and experienced what was intended for them. They were able to advance and change after the course, as evidenced by improvements in their communication, time management, and other essential skills.

DISCUSSION

The study found that internships offer students a chance to gain practical experience in their field of study and that the CCMS internship program helps students gain professional skills that are difficult to teach in a classroom context. The research demonstrates that the internship program provides students with hands-on experience in the media and communication sectors, enabling them to interact directly with industry professionals. Additionally, the study highlighted some common challenges faced by internship students, including communication with supervisors, workload management, handling tasks beyond their current skill set, navigating limited workplace resources, adjusting to unfamiliar work environments, and refining time-management skills

(Feldman & Eric, 2021). The study's findings underscore the significance of assessing the practical application of university education in the workplace and the benefits of internship experiences as a mandatory component of CCMS specialization academic programmes. Consumptive metrics were used to evaluate and measure the alignment of academics with practice based on the internship reports of 64 students. It was found that students learned critical skills and gained extensive knowledge through internship programs. However, the extent of the learning resources consumed during internship programs is limited. This leads to a low alignment between theory and practice (Gill & Robert, 2020).

A recent study aims to assess the internship information system application in Vocational High Schools (VHS) to determine its effectiveness and appropriateness. The research was conducted at VHS of Muhammadiyah Prambanan using a quantitative approach with a descriptive method. Data was collected through observation and questionnaires and analyzed using descriptive and quantitative analysis. The results show that the implementation of the internship information system is at 73% and is considered effective (Hora et al., 2021).

The study's findings are consistent with previous studies that have shown the benefits of internships in bridging the gap between academic instruction and real-world applications. For example, a study by Feldman & Eric (2021) found that internships can help students acquire practical skills and gain exposure to work environments, leading to increased employability. Additionally, a study by Gill & Robert (2020) highlighted the importance of internships in developing soft skills, such as communication and teamwork, which are essential for success in the workplace. The study's findings also align with previous research that has identified challenges associated with virtual internships. For example, a study by Hora et al. (2021) found that communication and collaboration can be challenging in virtual work environments, potentially hindering learning and development. Similarly, a study by Mainga et al. (2020) highlighted the difficulties associated with managing workloads and tasks beyond students' current skill set in virtual internships. The study's unique contribution is that it analyzes the effectiveness of internships in aligning education with industry during the COVID-19 pandemic. This situation is unprecedented and has disrupted many internship programs, leading to concerns about the effectiveness of virtual internships. The findings suggest that virtual internships can still provide valuable practical experience for students, but there are challenges that need to be addressed, such as communication and workload management (McHugh, 2017).

The outcomes are consistent with previous research that has identified the benefits of internships in bridging the gap between academic instruction and real-world applications. However, the proposed study also highlights challenges associated with virtual internships, which need to be addressed to ensure that students continue to gain practical experience in their field of study, even in virtual work environments (NACE (National Association of Colleges and Employers). (2021).

This study has some limitations that should be considered when interpreting the findings. First, the study sample was limited to CCMS students in various UAE

organizations, which may not be representative of all 10-week internship programmes in other fields or regions. Second, the study only focuses on the "reaction" and "learning" constructs of Kirkpatrick's framework and does not cover the "behavior" and "results" constructs, which are equally important in evaluating internship effectiveness. Third, this study relied solely on student reports and did not include feedback from employers or industry professionals (Smith & Betts, 2020). Finally, the study only focused on virtual internships during the pandemic and may not reflect the effectiveness of traditional hands-on internships. The other main limitation of this study was its small sample size. Hence, subsequent project phases aim to measure consumptive metrics with a larger sample and compare on-site internships with online internships. This can provide a measure of alignment to compare and reveal the challenges faced in online internships that our interns undertook during the pandemic period (Wilton, 2012).

Future research could expand this study by addressing the limitations mentioned above. For example, future studies could include a larger and more diverse sample of students and organizations as well as feedback from employers and industry professionals. Additionally, future research could include a more comprehensive evaluation of Kirkpatrick's framework, including the "behavior" and "results" constructs. Moreover, future research should investigate the effectiveness of hybrid internship models that combine virtual and hands-on approaches. Finally, future research should explore the long-term impact of internships on students' career trajectories and job performance (Zegwaard et al., 2017).

CONCLUSION

The study tested the effectiveness of integrating the internship program in the event of a catastrophe, specifically the COVID-19 pandemic, in bridging the gap between education and industry. Using Kirkpatrick's model, the study delved into the reaction and learning domains of this model in order to ascertain the strengths and weaknesses of the program of the CCMS internship. Internship opportunities offered the students practical experience in various industries and exposure, which enabled the students to interact directly with professionals in their area of specialization. Besides, the skills that the students acquired in handling the various tasks are requisite and may not be acquired in class.

However, the study also faced a number of challenges that this opportunity brought about: communication with the supervisors, reducing and managing their workload, handling tasks that are way beyond the competence of the student, acclimating to limited resources in the workplace, acclimating to a new environment, and sharpening their time management skills, among others. This calls for internal capacity building in the internship program or better internship support system. The application of university knowledge is effective in the workplace, and the internship is best described as the most effective tool in pursuing this path. Although the students encountered several challenges, they developed the most critical skills and vast knowledge. However, the level of alignment between academic theories and practical application was not adequate.

The paper will aid the discussion on the efficacy of the internship program for further studies and knowledge for academic policy. A subsequent study should improve the shortfalls outlined based on a more significant and diverse study population to incorporate the feedback from the employers and evaluate the Kirkpatrick model comprehensively. More study is needed to evaluate the effectiveness of a hybrid model of internship and the long-term impact of the program on a student's career path, among other things.

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Appendix 1

Shows the coverage of reactıon and learnıng ın consumptıve metrıcs

	Reaction				Learning			
	A : 1.1 Course Satisfactio n	B : 1.2 Training Relevance	C : 1.3 Training Environment	Reaction	D : 2.1 Knowledge Gained	E : 2.2 Experience Gained	F : 2.3 Advancement	Learning
1	0,86%	0,0%	1,66%	2,52%	2,58%	0,56%	0,0%	3,14%
2	1,24%	0,00%	2,05%	3,29%	4,79%	1,15%	0,65%	6,59%
3	2,78%	1,75%	2,36%	6,89%	4,06%	5,87%	1,12%	11,05%
4	0,00%	1,83%	1,69%	3,52%	2,72%	1,46%	0,00%	4,18%
5	0,00%	1,18%	0,88%	2,06%	1,97%	0,0%	1,34%	3,31%
6	0,72%	3,67%	2,38%	6,77%	1,82%	2,24%	1,14%	5,2%
7	1,41%	0,0%	2,37%	3,78%	3,97%	5,64%	1,22%	10,83%
8	0,00%	2,33%	2,35%	4,68%	5,54%	3,32%	0,0%	8,86%
9	1,06%	0,87%	1,24%	3,17%	0,0%	2,55%	0,0%	2,55%
10	0,00%	0,0%	1,77%	1,77%	5,03%	3,1%	1,72%	9,85%
11	1,45%	0,00%	1,03%	2,48%	2,56%	4,18%	0,79%	7,53%
12	1,23%	3,16%	2,53%	6,92%	1,81%	5,18%	4,29%	11,28%
13	1,07%	2,12%	0,73%	3,92%	3,6%	0,0%	2,71%	6,31%
14	0,0%	0,00%	2,35%	2,35%	2,74%	0,57%	0,0%	3,31%
15	1,66%	1,54%	2,27%	5,47%	0,88%	3,21%	0,0%	4,09%
16	0,0%	0,0%	0,0%	0,00%	0,0%	7,04%	0,0%	7,04%
17	1,82%	3,14%	2,04%	7,00%	2,39%	3,27%	0,0%	5,66%
18	0,79%	0,0%	0,0%	0,79%	1,7%	3,23%	1,75%	6,68%
19	1,6%	0,0%	0,47%	2,07%	0,84%	3,14%	0,0%	3,98%
20	1,11%	2,8%	0,75%	4,66%	0,18%	1,35%	0,0%	1,53%
21	1,70%	0,0%	4,05%	5,75%	1,51%	2,01%	0,0%	3,52%
22	0,00%	0,0%	3,07%	3,07%	1,19%	2,29%	0,0%	3,48%
23	0,00%	0,0%	0,28%	0,28%	4,64%	0,94%	0,0%	5,58%
24	0,00%	2,38%	1,36%	3,74%	2,73%	0,71%	0,95%	4,39%
25	0,95%	1,18%	0,0%	2,13%	3,42%	0,70%	3,73%	7,85%
26	4,22%	2,7%	4,46%	11,38%	1,78%	5,53%	0,0%	7,31%
27	1,91%	0,0%	1,96%	3,87%	1,89%	4,53%	1,98%	8,4%
28	0,00%	0,0%	0,0%	0,00%	1,57%	1,29%	0,56%	3,42%
29	0,76%	0,0%	2,24%	3,00%	4,14%	2,40%	0,0%	6,54%
30	2,94%	5,59%	3,07%	11,60%	0,58%	2,38%	1,88%	4,84%
31	2,42%	2,23%	1,69%	6,34%	3,67%	2,25%	0,0%	5,92%
32	2,64%	0,0%	2,26%	4,90%	5,18%	0,87%	1,39%	7,44%
33	0,00%	3,11%	2,03%	5,14%	2,39%	2,63%	0,0%	5,02%
34	2,11%	2,2%	1,21%	5,52%	7,66%	0,00%	0,0%	7,66%
35	3,04%	0,0%	1,11%	4,15%	2,79%	3,31%	0,0%	6,1%
36	1,62%	8,11%	4,6%	14,33%	0,0%	0,00%	0,0%	0,0%
37	0,60%	0,8%	0,42%	1,82%	2,83%	0,00%	0,0%	2,83%
38	4,34%	1,43%	4,87%	10,64%	2,97%	0,00%	0,0%	2,97%
39	6,23%	4,35%	1,51%	12,09%	2,37%	1,37%	0,0%	3,74%
40	0,74%	1,88%	0,0%	2,62%	1,51%	0,00%	0,0%	1,51%
41	0,00%	1,43%	0,0%	1,43%	0,71%	1,82%	0,0%	2,53%
42	0,90%	1,55%	1,03%	3,48%	0,94%	3,63%	0,0%	4,57%
43	0,00%	0,69%	1,39%	2,08%	1,24%	3,53%	3,91%	8,68%
44	5,12%	0,0%	2,36%	7,48%	0,88%	1,20%	0,0%	2,08%
45	1,25%	3,53%	1,03%	5,81%	0,0%	6,63%	0,0%	6,63%
46	0,00%	2,51%	4,49%	7,00%	1,48%	5,01%	0,0%	6,49%
47	3,89%	8,18%	1,74%	13,81%	2,46%	2,76%	2,43%	7,65%
48	0,00%	1,43%	0,0%	1,43%	5,39%	0,00%	0,0%	5,39%
49	0,68%	1,74%	2,53%	4,95%	6,04%	1,82%	1,66%	9,52%
50	0,00%	0,0%	2,02%	2,02%	3,14%	0,00%	2,7%	5,84%
51	0,00%	0,0%	2,21%	2,21%	6,22%	0,00%	0,0%	6,22%
52	0,00%	0,59%	0,84%	1,43%	2,1%	1,75%	0,0%	3,85%
53	0,00%	0,0%	0,0%	0,00%	2,86%	2,81%	0,0%	5,67%

54	3,78%	2,51%	3,33%	9,62%	5,08%	0,00%	1,08%	6,16%
55	3,31%	3,39%	1,31%	8,01%	4,14%	3,42%	1,3%	8,86%
56	0,00%	0,91%	0,47%	1,38%	2,02%	4,55%	0,0%	6,57%
57	0,00%	5,71%	2,71%	8,42%	0,0%	5,49%	0,0%	5,49%
58	4,89%	2,63%	1,48%	9,00%	2,87%	0,00%	0,0%	2,87%
59	0,61%	0,0%	1,04%	1,65%	2,9%	1,49%	2,1%	6,49%
60	1,37%	1,43%	0,8%	3,60%	1,74%	3,78%	0,0%	5,52%
61	4,84%	3,67%	2,25%	10,76%	2,04%	3,27%	5,45%	10,76%
62	2,76%	1,58%	0,0%	4,34%	2,38%	0,00%	0,0%	2,38%
63	2,07%	0,0%	2,61%	4,68%	2,39%	1,73%	0,0%	4,12%
64	0,80%	0,37%	0,0%	1,17%	1,51%	0,96%	0,0%	2,47%
Total	91,3%	104,2%	106,75%	302,24%	164,53%	145,92%	47,85%	358,3%

Appendix 2

Demonstrates the Frequency of reaction and learning in consumptive metrics

	Reaction				Learning			
	A : 1.1 Course Satisfaction	B : 1.2 Training Relevance	C : 1.3 Training Environment	Reaction	D : 2.1 Knowledge Gained	E : 2.2 Experience Gained	F : 2.3 Advancement	Learning
1	1	0	1	2	2	1	0	3
2	2	0	2	4	4	2	1	7
3	2	1	1	4	3	3	1	7
4	0	1	2	3	2	1	0	3
5	0	1	1	2	2	0	1	3
6	1	2	1	4	2	4	1	7
7	1	0	1	2	2	2	1	5
8	0	1	1	2	2	2	0	4
9	1	1	1	3	0	1	0	1
10	0	0	1	1	3	3	1	7
11	1	0	1	2	2	3	1	6
12	1	2	1	4	2	5	1	8
13	1	1	1	3	2	0	1	3
14	0	0	1	1	2	1	0	3
15	1	1	1	3	1	1	0	2
16	0	0	0	0	0	3	0	3
17	1	2	1	4	2	2	0	4
18	1	0	0	1	1	2	1	4
19	1	0	1	2	1	1	0	2
20	2	2	1	5	1	1	0	2
21	1	0	1	2	1	1	0	2
22	0	0	1	1	1	2	0	3
23	0	0	1	1	3	2	0	5
24	0	1	1	2	2	1	1	4
25	1	1	0	2	1	1	1	3
26	1	1	1	3	1	2	0	3
27	2	0	1	3	2	3	1	6
28	0	0	0	0	3	3	1	7
29	1	0	1	2	2	2	0	4
30	1	2	1	4	1	2	1	4
31	2	1	1	4	2	3	0	5
32	2	0	1	3	2	1	1	4
33	0	1	1	2	2	2	0	4

34	2	2	1	5	3	0	0	3
35	2	0	1	3	2	1	0	3
36	1	1	1	3	0	0	0	0
37	1	1	1	3	4	0	0	4
38	3	1	2	6	2	0	0	2
39	2	2	1	5	1	2	0	3
40	1	1	0	2	2	0	0	2
41	0	2	0	2	1	1	0	2
42	1	1	1	3	1	4	0	5
43	0	1	1	2	1	2	2	5
44	1	0	2	3	1	1	0	2
45	1	1	1	3	0	2	0	2
46	0	1	2	3	1	2	0	3
47	2	4	1	7	1	2	1	4
48	0	1	0	1	1	0	0	1
49	1	1	1	3	3	2	1	6
50	0	0	1	1	1	0	1	2
51	0	0	1	1	1	0	0	1
52	0	1	1	2	2	1	0	3
53	0	0	0	0	1	2	0	3
54	1	1	2	4	2	0	1	3
55	1	2	1	4	2	2	1	5
56	0	1	1	2	1	3	0	4
57	0	1	1	2	0	3	0	3
58	1	1	1	3	2	0	0	2
59	1	0	1	2	3	1	1	5
60	1	1	1	3	1	3	0	4
61	1	1	1	3	1	2	1	4
62	1	1	0	2	1	0	0	1
63	1	0	1	2	1	1	0	2
64	2	1	0	3	4	3	0	7
Total	56	53	60	169	106	103	25	234