Measuring the Effectiveness of Internship Programs in Aligning Education with Industry: A Comprehensive Analysis of Internship Outcomes in College of Communication and Media during Covid-19

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Abstract

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. 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.

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1. Introduction

An internship is defined as a professional job experience relevant to a student's academic major, where the student collaborates with a company to complete tasks that benefit both parties (L.L. Friesenborg, 2002). 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. Internship experience is a required educational component of the College of Communication and Media Sciences (CCMS) specialization academic programs, allowing college students to gain professional skills that are difficult to teach in a classroom context (Krippendorff, 1980).

The world is constantly evolving, as are the job requirements of different industries. To keep up with evolving job trends, educational institutions must align their teaching methodologies with job market demands. One way to achieve this alignment is through internship programs that provide students with practical work experiences. 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. This has resulted in many internship programs being disrupted, and students find it challenging to gain practical experience in their fields of study. 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.

Moreover, the pandemic has caused numerous challenges for students participating in internship programmes. For instance, communication with supervisors and colleagues may be challenging in virtual work environments, leading to

potential barriers to learning and development. Additionally, managing workloads and tasks beyond their current skill set, navigating limited workplace resources, adapting to unfamiliar work environments, and refining time management skills can be more challenging in a virtual setting. These challenges have raised concerns regarding the effectiveness of internship programs in aligning education with industry during the COVID-19 pandemic. Therefore, it is crucial to evaluate the effectiveness of current internship programs and identify areas of improvement to ensure that students continue to gain practical experience in their field of study, even in virtual work environments.

This study analyzed the effectiveness of internship programs in aligning education with industry during the ongoing COVID-19 pandemic. By analyzing 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. The research focuses on the "reaction" and "learning" constructs in the alignment of theoretical teachings with practical experiences. 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 CCMS offers a ten-week internship program for final-year students to engage with industry professionals. The programme may lead to potential job offers after graduation. Internship performance is evaluated using a pass-fail system by faculty and supervisors.

2. Related Works

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).

Donald L. Kirkpatrick's Framework (1959) 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 (Fig. 1). The most effective experiences for improving learning are live-case study projects and internships (Miles and Huberman, 1994). In Kirkpatrick's framework, experiential learning can be defined as

learning from experience or education by doing (Lewis and Williams, 1994).

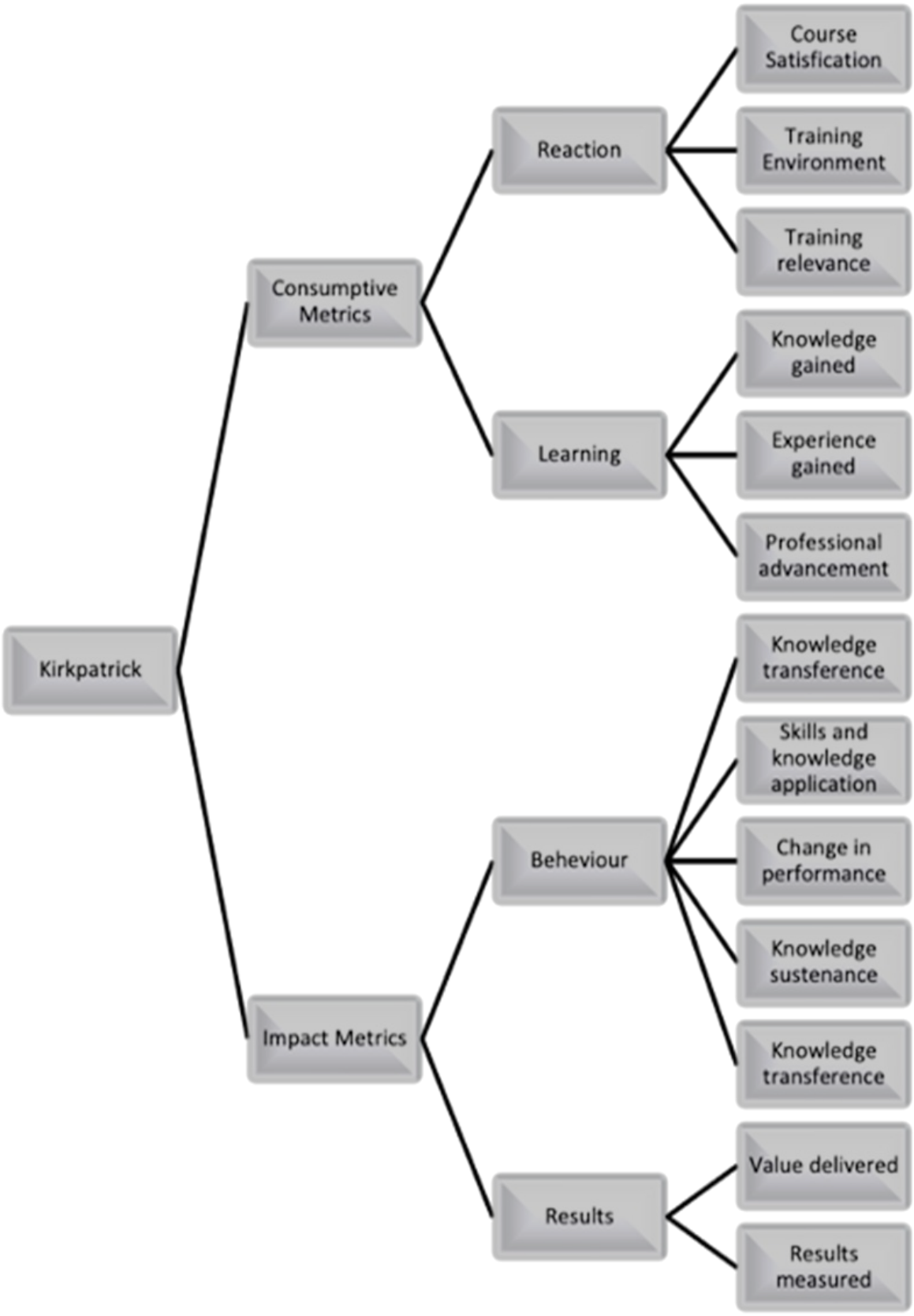

Fig. 1. Measurement of consumptive and impact metrics (adapted from Kirkpatrick)

2.1. *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 and 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, Chu, and Oguz, 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.

2.2. *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 and You) (Docherty et al.). Internships are "an opportunity for intensive work-based exposure to a broad range of operations within a company" (Crossley, Jamieson, and 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).

3. Methodology

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 (Fig. 2). 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.

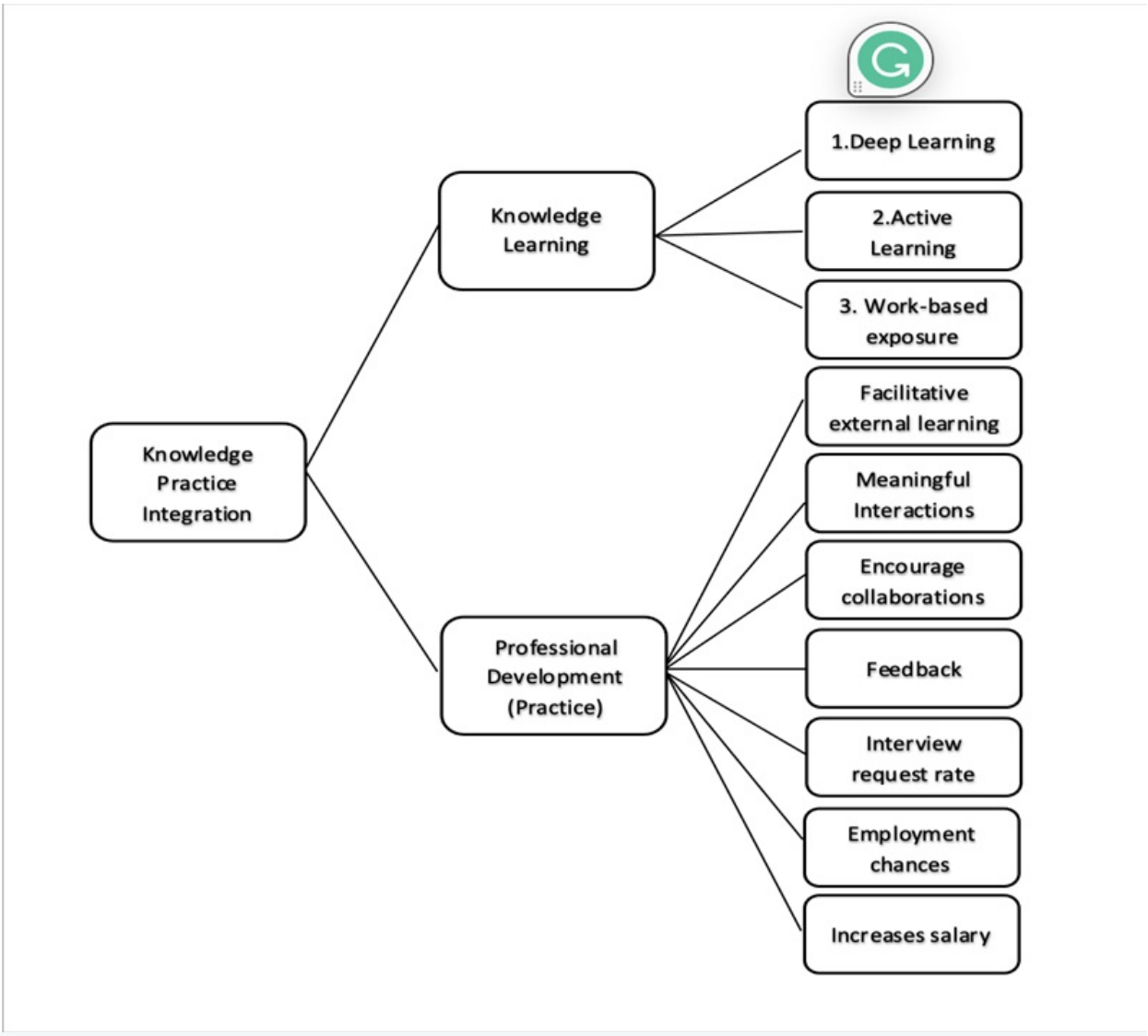

Fig. 2. Integrating learning into practice

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 20 students 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). Following the principles outlined by Krippendorff (2018), the researchers selected texts with identifiable meanings for content analysis. Qualitative research provides insights into human conditions in various contexts and situations (Bengtsson, 2016). In this study, we used a qualitative 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.

3.1. *Data Analysis*

The authors used NVIVO 12 qualitative research software to analyze the final internship reports of 64 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 qualitative data analysis. We evaluated the node strength based on word count and frequency.

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

Table 1. Evaluation of Consumptive Metrics, Namely 'Reaction' and 'Learning

Reaction	Learning
• Was the course enjoyable for the learners? Did they find it useful? • Was the training liked and enjoyed by the learners? • Was the training relevant to them? • What did they think of the venue, the style, the timing, etc.? • Did they make good use of their time?	• Were the learners able to learn what was intended to be taught? • Did the learners experience what was intended for them to experience? • How far have the learners advanced or changed after the course?

4. Results and discussion

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 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.

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

Table 2 illustrates the extent of coverage of the themes under the construct's 'reaction' and 'learning.' 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 positive indicator, while career advancement needs to be focused on.

Coverage

	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 : File_01	0.86%	0.0%	1.66%	2.52%	2.58%	0.56%	0.0%	3.14%
2 : File_02	1.24%	0.00%	2.05%	3.29%	4.79%	1.15%	0.65%	6.59%
3 : File_03	2.78%	1.75%	2.36%	6.89%	4.06%	5.87%	1.12%	11.05%
4 : File_04	0.00%	1.83%	1.69%	3.52%	2.72%	1.46%	0.00%	4.18%
5 : File_05	0.00%	1.18%	0.88%	2.06%	1.97%	0.0%	1.34%	3.31%
6 : File_06	0.72%	3.67%	2.38%	6.77%	1.82%	2.24%	1.14%	5.2%
7 : File_07	1.41%	0.0%	2.37%	3.78%	3.97%	5.64%	1.22%	10.83%
8 : File_08	0.00%	2.33%	2.35%	4.68%	5.54%	3.32%	0.0%	8.86%
9 : File_09	1.06%	0.87%	1.24%	3.17%	0.0%	2.55%	0.0%	2.55%
10 : File_10	0.00%	0.0%	1.77%	1.77%	5.03%	3.1%	1.72%	9.85%
11 : File_11	1.45%	0.00%	1.03%	2.48%	2.56%	4.18%	0.79%	7.53%
12 : File_12	1.23%	3.16%	2.53%	6.92%	1.81%	5.18%	4.29%	11.28%
13 : File_13	1.07%	2.12%	0.73%	3.92%	3.6%	0.0%	2.71%	6.31%
14 : File_14	0.0%	0.00%	2.35%	2.35%	2.74%	0.57%	0.0%	3.31%
15 : File_15	1.66%	1.54%	2.27%	5.47%	0.88%	3.21%	0.0%	4.09%
16 : File_16	0.0%	0.0%	0.0%	0.00%	0.0%	7.04%	0.0%	7.04%
17 : File_17	1.82%	3.14%	2.04%	7.00%	2.39%	3.27%	0.0%	5.66%
18 : File_18	0.79%	0.0%	0.0%	0.79%	1.7%	3.23%	1.75%	6.68%
19 : File_19	1.6%	0.0%	0.47%	2.07%	0.84%	3.14%	0.0%	3.98%
20 : File_20	1.11%	2.8%	0.75%	4.66%	0.18%	1.35%	0.0%	1.53%
21 : File_21	1.70%	0.0%	4.05%	5.75%	1.51%	2.01%	0.0%	3.52%
22 : File_22	0.00%	0.0%	3.07%	3.07%	1.19%	2.29%	0.0%	3.48%
23 : File_23	0.00%	0.0%	0.28%	0.28%	4.64%	0.94%	0.0%	5.58%
24 : File_24	0.00%	2.38%	1.36%	3.74%	2.73%	0.71%	0.95%	4.39%
25 : File_25	0.95%	1.18%	0.0%	2.13%	3.42%	0.70%	3.73%	7.85%
26 : File_26	4.22%	2.7%	4.46%	11.38%	1.78%	5.53%	0.0%	7.31%
27 : File_27	1.91%	0.0%	1.96%	3.87%	1.89%	4.53%	1.98%	8.4%
28 : File_28	0.00%	0.0%	0.0%	0.00%	1.57%	1.29%	0.56%	3.42%
29 : File_29	0.76%	0.0%	2.24%	3.00%	4.14%	2.40%	0.0%	6.54%
30 : File_30	2.94%	5.59%	3.07%	11.60%	0.58%	2.38%	1.88%	4.84%
31 : File_31	2.42%	2.23%	1.69%	6.34%	3.67%	2.25%	0.0%	5.92%
32 : File_32	2.64%	0.0%	2.26%	4.90%	5.18%	0.87%	1.39%	7.44%
33 : File_33	0.00%	3.11%	2.03%	5.14%	2.39%	2.63%	0.0%	5.02%
34 : File_34	2.11%	2.2%	1.21%	5.52%	7.66%	0.00%	0.0%	7.66%
35 : File_35	3.04%	0.0%	1.11%	4.15%	2.79%	3.31%	0.0%	6.1%
36 : File_36	1.62%	8.11%	4.6%	14.33%	0.0%	0.00%	0.0%	0.0%
37 : File_37	0.60%	0.8%	0.42%	1.82%	2.83%	0.00%	0.0%	2.83%
38 : File_38	4.34%	1.43%	4.87%	10.64%	2.97%	0.00%	0.0%	2.97%
39 : File_39	6.23%	4.35%	1.51%	12.09%	2.37%	1.37%	0.0%	3.74%
40 : File_40	0.74%	1.88%	0.0%	2.62%	1.51%	0.00%	0.0%	1.51%
41 : File_41	0.00%	1.43%	0.0%	1.43%	0.71%	1.82%	0.0%	2.53%
42 : File_42	0.90%	1.55%	1.03%	3.48%	0.94%	3.63%	0.0%	4.57%
43 : File_43	0.00%	0.69%	1.39%	2.08%	1.24%	3.53%	3.91%	8.68%
44 : File_44	5.12%	0.0%	2.36%	7.48%	0.88%	1.20%	0.0%	2.08%
45 : File_45	1.25%	3.53%	1.03%	5.81%	0.0%	6.63%	0.0%	6.63%
46 : File_46	0.00%	2.51%	4.49%	7.00%	1.48%	5.01%	0.0%	6.49%
47 : File_47	3.89%	8.18%	1.74%	13.81%	2.46%	2.76%	2.43%	7.65%
48 : File_48	0.00%	1.43%	0.0%	1.43%	5.39%	0.00%	0.0%	5.39%
49 : File_49	0.68%	1.74%	2.53%	4.95%	6.04%	1.82%	1.66%	9.52%
50 : File_50	0.00%	0.0%	2.02%	2.02%	3.14%	0.00%	2.7%	5.84%
51 : File_51	0.00%	0.0%	2.21%	2.21%	6.22%	0.00%	0.0%	6.22%
52 : File_52	0.00%	0.59%	0.84%	1.43%	2.1%	1.75%	0.0%	3.85%
53 : File_53	0.00%	0.0%	0.0%	0.00%	2.86%	2.81%	0.0%	5.67%
54 : File_54	3.78%	2.51%	3.33%	9.62%	5.08%	0.00%	1.08%	6.16%
55 : File_55	3.31%	3.39%	1.31%	8.01%	4.14%	3.42%	1.3%	8.86%

56 : File_56	0.00%	0.91%	0.47%	1.38%	2.02%	4.55%	0.0%	6.57%
57 : File_57	0.00%	5.71%	2.71%	8.42%	0.0%	5.49%	0.0%	5.49%
58 : File_58	4.89%	2.63%	1.48%	9.00%	2.87%	0.00%	0.0%	2.87%
59 : File_59	0.61%	0.0%	1.04%	1.65%	2.9%	1.49%	2.1%	6.49%
60 : File_60	1.37%	1.43%	0.8%	3.60%	1.74%	3.78%	0.0%	5.52%
61 : File_61	4.84%	3.67%	2.25%	10.76%	2.04%	3.27%	5.45%	10.76%
62 : File_62	2.76%	1.58%	0.0%	4.34%	2.38%	0.00%	0.0%	2.38%
63 : File_63	2.07%	0.0%	2.61%	4.68%	2.39%	1.73%	0.0%	4.12%
64 : File_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%

Table 2. *Shows the Coverage of Reaction and Learning in Consumptive Metrics*

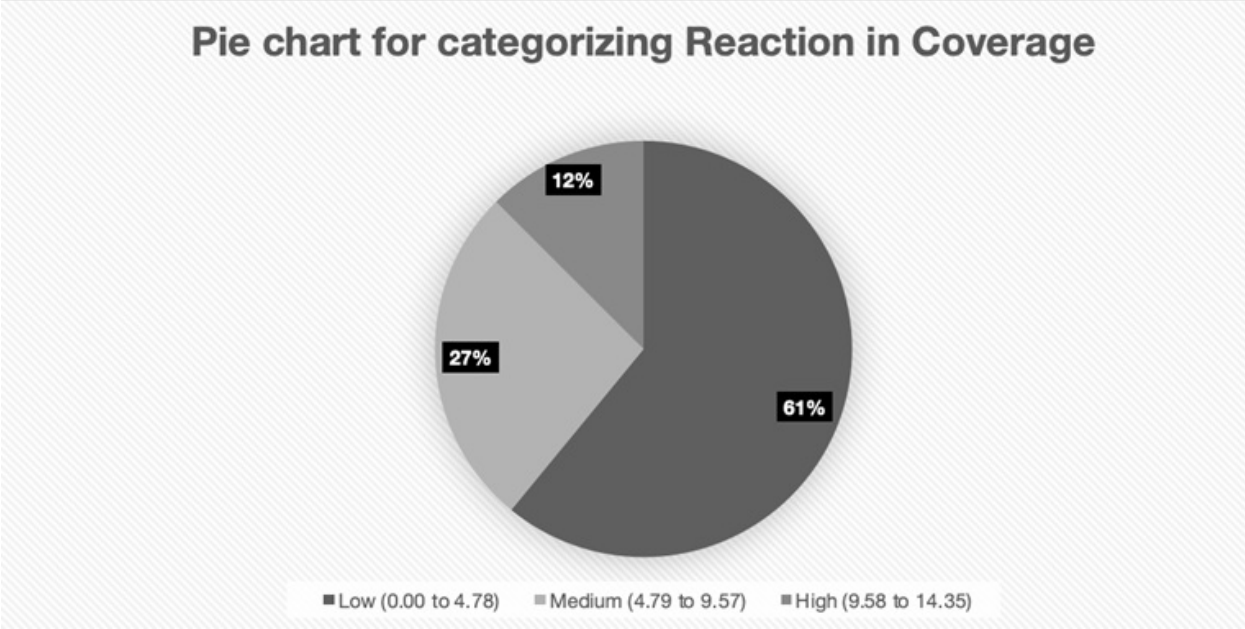

Fig. 3. Pie chart for categorizing reactions in coverage.

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' (0.00 to 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 (Fig. 3). This is an area of concern owing to the absence of a bell-shaped curve. To evaluate the relative strengths of each construct and the associated themes, we used the range of 'learning' (0 to 11.38). We categorized these into low (0 – 3.76), medium (3.77 – 7.52), and high (7.53 – 11.38) by separating these into three equal-value ranges. From a 'learning' perspective, we found that 19% of students scored high, while 23% scored medium, and 58% scored low (Fig. 4). This matches with the 'reaction' construct and is an area where we must focus on to evaluate the reasons.

Fig. 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.

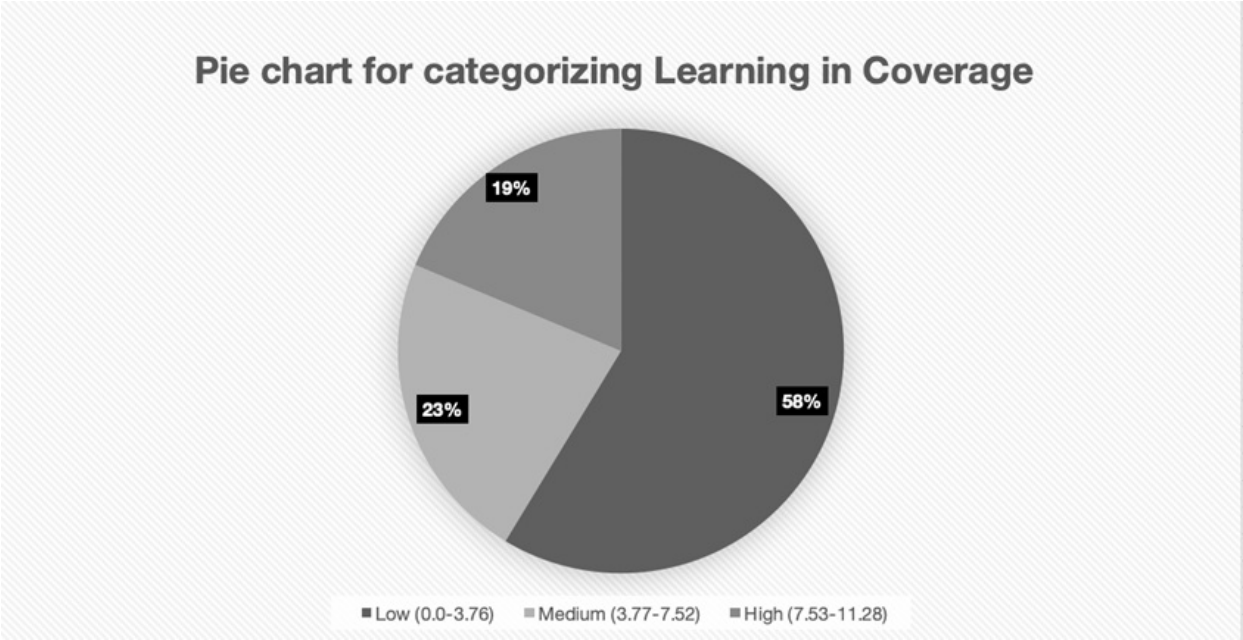

Fig. 4. Pie chart for categorizing learning in coverage

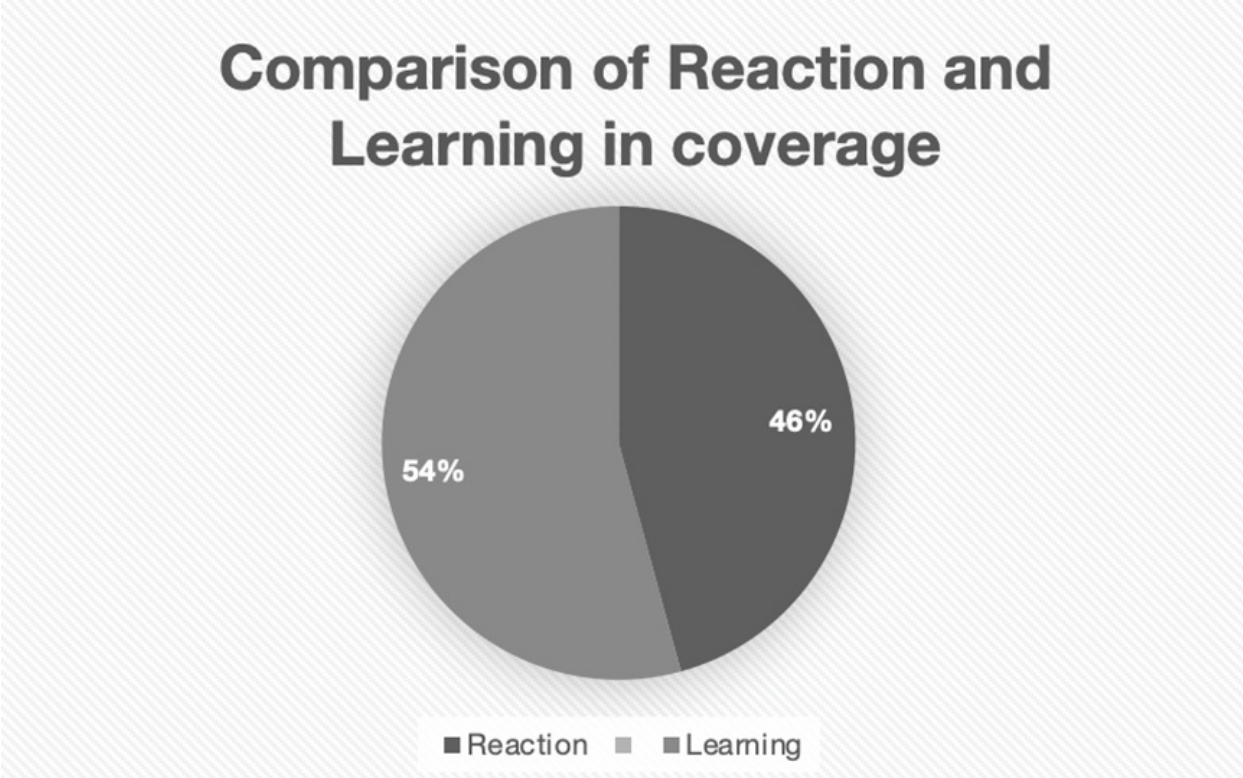

Fig. 5. Pie chart illustrating a comparison of reaction to learning from a coverage perspective.

4.2. *Measuring 'reaction' and 'learning' based on frequency*

Table 3 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.

Frequency_References

	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 : Advancement	Learning
1 : File_01	1	0	1	2	2	1	0	3
2 : File_02	2	0	2	4	4	2	1	7
3 : File_03	2	1	1	4	3	3	1	7
4 : File_04	0	1	2	3	2	1	0	3
5 : File_05	0	1	1	2	2	0	1	3
6 : File_06	1	2	1	4	2	4	1	7
7 : File_07	1	0	1	2	2	2	1	5
8 : File_08	0	1	1	2	2	2	0	4
9 : File_09	1	1	1	3	0	1	0	1
10 : File_10	0	0	1	1	3	3	1	7
11 : File_11	1	0	1	2	2	3	1	6
12 : File_12	1	2	1	4	2	5	1	8
13 : File_13	1	1	1	3	2	0	1	3
14 : File_14	0	0	1	1	2	1	0	3
15 : File_15	1	1	1	3	1	1	0	2
16 : File_16	0	0	0	0	0	3	0	3
17 : File_17	1	2	1	4	2	2	0	4
18 : File_18	1	0	0	1	1	2	1	4
19 : File_19	1	0	1	2	1	1	0	2
20 : File_20	2	2	1	5	1	1	0	2
21 : File_21	1	0	1	2	1	1	0	2
22 : File_22	0	0	1	1	1	2	0	3
23 : File_23	0	0	1	1	3	2	0	5
24 : File_24	0	1	1	2	2	1	1	4
25 : File_25	1	1	0	2	1	1	1	3
26 : File_26	1	1	1	3	1	2	0	3
27 : File_27	2	0	1	3	2	3	1	6
28 : File_28	0	0	0	0	3	3	1	7
29 : File_29	1	0	1	2	2	2	0	4
30 : File_30	1	2	1	4	1	2	1	4
31 : File_31	2	1	1	4	2	3	0	5
32 : File_32	2	0	1	3	2	1	1	4
33 : File_33	0	1	1	2	2	2	0	4
34 : File_34	2	2	1	5	3	0	0	3
35 : File_35	2	0	1	3	2	1	0	3
36 : File_36	1	1	1	3	0	0	0	0
37 : File_37	1	1	1	3	4	0	0	4
38 : File_38	3	1	2	6	2	0	0	2
39 : File_39	2	2	1	5	1	2	0	3
40 : File_40	1	1	0	2	2	0	0	2
41 : File_41	0	2	0	2	1	1	0	2
42 : File_42	1	1	1	3	1	4	0	5
43 : File_43	0	1	1	2	1	2	2	5
44 : File_44	1	0	2	3	1	1	0	2
45 : File_45	1	1	1	3	0	2	0	2
46 : File_46	0	1	2	3	1	2	0	3
47 : File_47	2	4	1	7	1	2	1	4

48 : File_48	0	1	0	1	1	0	0	1
49 : File_49	1	1	1	3	3	2	1	6
50 : File_50	0	0	1	1	1	0	1	2
51 : File_51	0	0	1	1	1	0	0	1
52 : File_52	0	1	1	2	2	1	0	3
53 : File_53	0	0	0	0	1	2	0	3
54 : File_54	1	1	2	4	2	0	1	3
55 : File_55	1	2	1	4	2	2	1	5
56 : File_56	0	1	1	2	1	3	0	4
57 : File_57	0	1	1	2	0	3	0	3
58 : File_58	1	1	1	3	2	0	0	2
59 : File_59	1	0	1	2	3	1	1	5
60 : File_60	1	1	1	3	1	3	0	4
61 : File_61	1	1	1	3	1	2	1	4
62 : File_62	1	1	0	2	1	0	0	1
63 : File_63	1	0	1	2	1	1	0	2
64 : File_64	2	1	0	3	4	3	0	7
Total	56	53	60	169	106	103	25	234

Table 3. *Demonstrates the Frequency of reaction and learning in consumptive metrics*

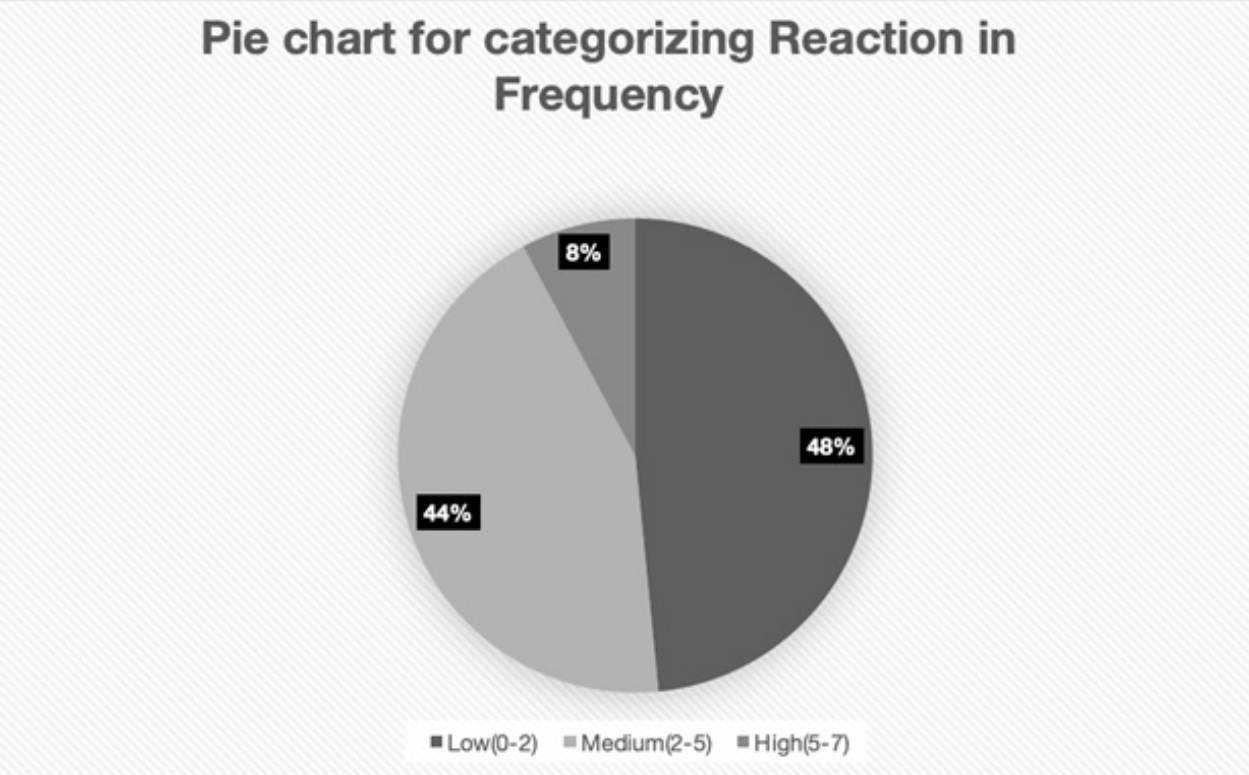

Fig. 6. Pie chart for categorizing reactions in frequency.

To evaluate the relative strengths of each construct and the associated themes, we used the overall range of 'reaction' (0– 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 (Fig. 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 (Fig.7). 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.’

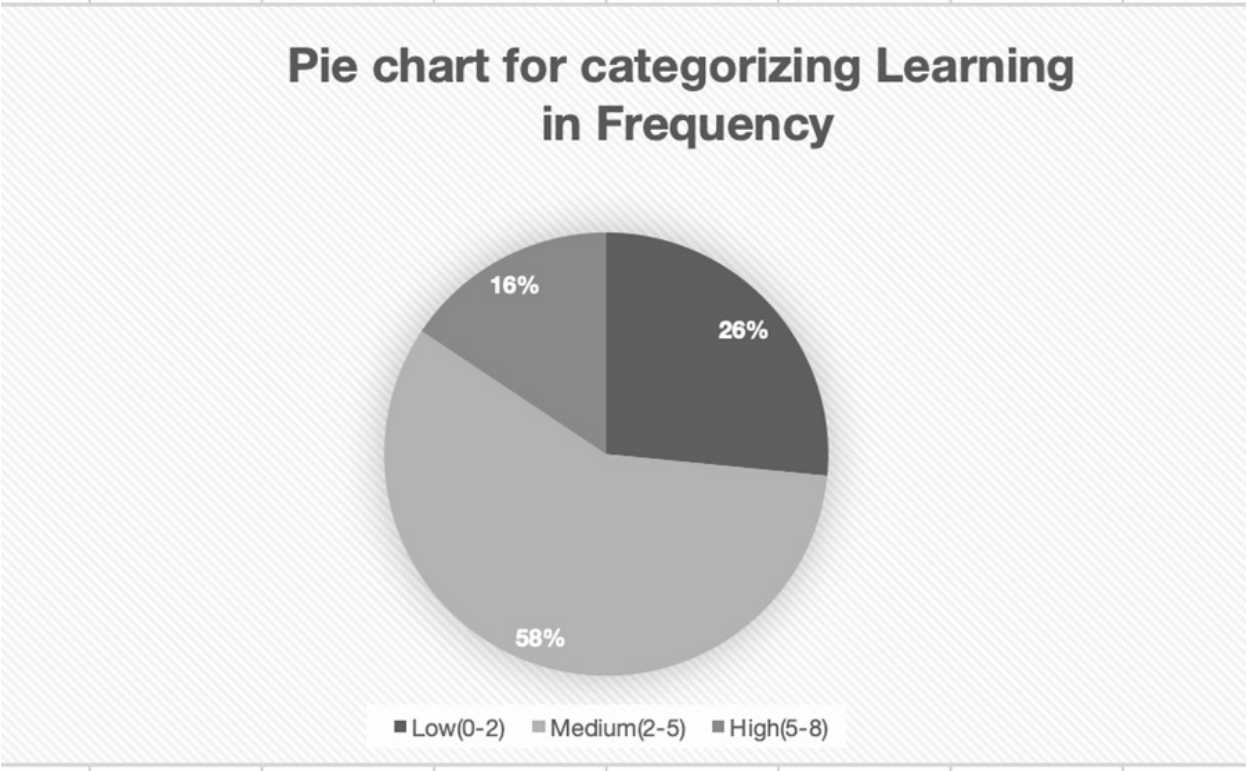

Fig. 7. Pie chart for categorizing learning in frequency

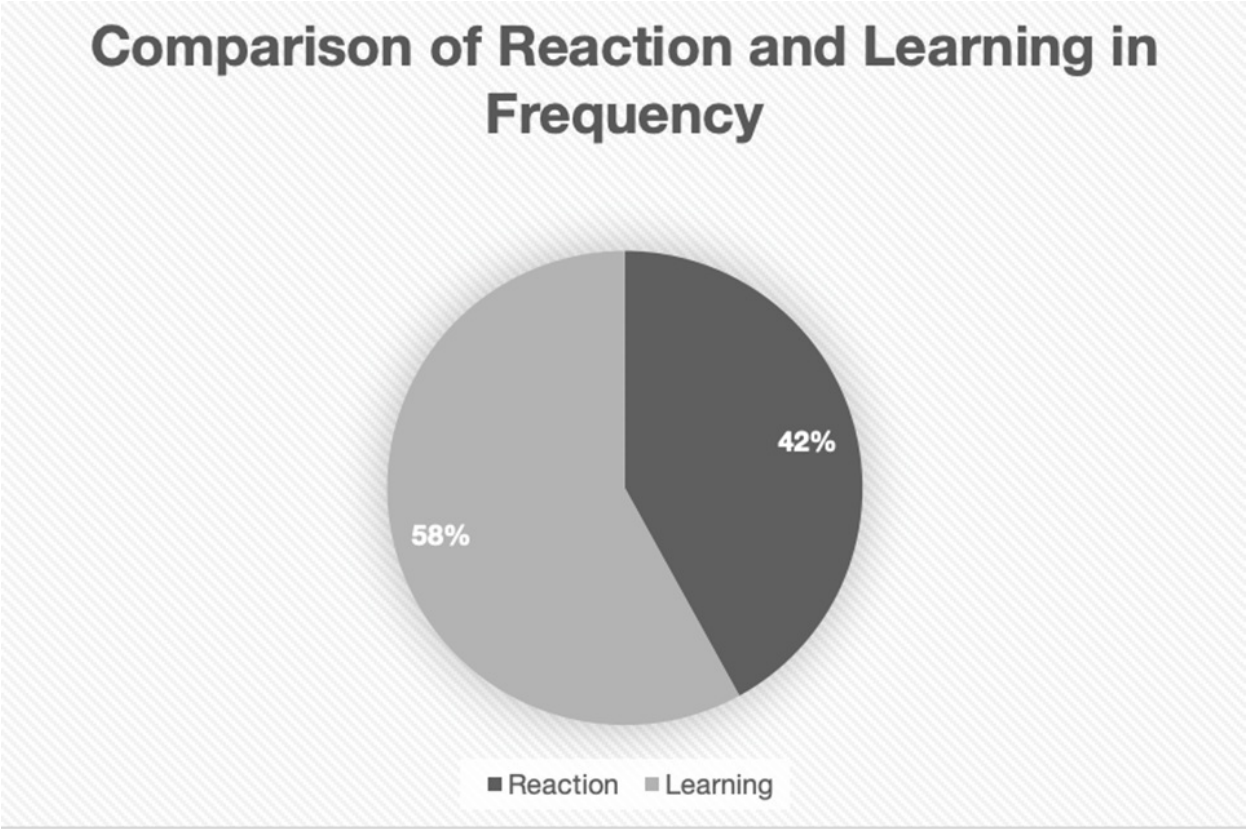

Fig. 8. Pie chart illustrating a comparison of reaction to learning from a frequency perspective.

Fig. 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 4. It 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 4 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 COVID-19 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 COVID-19 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.

The study also 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. 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.

In this study, 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.

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 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. Finally, the study only focused on virtual internships during the COVID-19 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 (during Covid-19). This can provide a measure of alignment to compare and reveal the challenges faced in online internships that our interns undertook during the Covid-19 period

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.

5. Conclusion

Internships in undergraduate programs aim to seamlessly integrate, assimilate, and apply knowledge and technical skills learned during the first three years of the program in the professional world. Aligning academics with practice in the short span of ten weeks for ZU, CCMS undergraduate computer science students is critical. It prepares them to integrate into the professional world without challenges. In this respect, this study, which measured this alignment with a consumptive metrics lens by measuring ‘learning’ (what students learned during the course) and ‘reaction’ (the internship experience), discovered that while most interns positively evaluate the internship program in terms of skills learned and knowledge gained, the application of what they learned in an academic context to the internship program needs to be improved for optimal alignment. Further research is required to identify critical factors for aligning theory with practice. To ensure that students continue to gain practical experience in their field of study, even in a virtual work environment, academic policymakers must refine and enhance their internship offerings. The findings of this study can help academic policymakers understand the relative strengths and weaknesses of different learning areas and refine internship programs to address the challenges faced by students. The study outcomes 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 programs. The internship program provides students with hands-on experience in the media and communication sectors, enabling them to interact directly with industry professionals and prepare for their future careers.

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