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

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Abstract

Internships offer students and graduates a chance to gain practical experience in their field of study. Over ten weeks, assessing how university education translates into a professional setting can give insights to educational leaders about the efficacy of their training modules. For the Bachelor of Science students at the College of Communication and Media Sciences, internships are integral to their studies in Media Production and Storytelling, Integrated Strategic Communication, and Tourism Communication. This study employed Kirkpatrick's framework, focusing on the "reaction" and "learning" constructs, and to gauge the alignment of theoretical teachings with practical experiences, 64 student reports from a semester-long online internship in various UAE organizations during COVID-19 were analyzed to highlight the strengths and areas of improvement in aligning academic instruction with real-world applications.

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Introduction

Any professional job experience relevant to a student's academic major where the student collaborates with a company to complete tasks that benefit both parties is considered an internship (L.L Friesenborg, 2002). Measuring how university education is applied in the workplace over a ten-week internship program might help academic policymakers understand the relative strengths and weaknesses of different learning areas. The 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 CCMS college offers a ten-week unpaid internship program for its final-year students as a preparatory step before graduation. This program immerses students in the media and communication sector, enabling them to engage directly with industry professionals. Such interactions often pave the way for potential job offers post-graduation. Internship performance is evaluated on a pass-fail system, with the faculty and on-site supervisors collectively assessing the students. According to Hynie, Jensen, & Wedlock (2011), CCMS emphasizes service-learning during internships, allowing undergraduates to blend their academic knowledge with practical experiences for academic credit. However, internship students often encounter challenges, such as supervisory communication, managing workloads, addressing tasks beyond their current expertise, navigating limited workplace resources, adapting to unfamiliar work settings, and honing their time management skills (Harvey & Slee, 2010). As students transition from the familiarity of college to a new workplace environment, it becomes imperative to gauge their learning through tangible metrics to refine and enhance internship offerings.

In our assessment, and based on previous experiences, a CCMS internship student requires essential skills to support a successful internship, which includes a good command of written and spoken English and Arabic, interpersonal and communication skills, video production, multimedia skills, new media skills, theoretical course-related knowledge in their specialization, good professional conduct, and the abilities to accept responsibility for their action/work, meet deadlines, work with people from diverse backgrounds, and work individually and collaboratively. The CCMS bachelor's program prepares students to become bilingual leaders in the UAE, the Gulf region, and the global community. Teaching and learning at the College emphasize the importance of media and communication in local and global cultures, information,

technological literacy, language competency in Arabic and English, ethics, truth, accuracy, and fairness in communication, the balance of hard and soft skills is essential to our student's success in the CCMS internship program.

Students are evaluated during and after the internship program using formative and summative assessment methods. As part of the formative process, the student submits weekly reports, and the faculty supervisor meets with the internship site supervisor and completes a site supervisor survey. There is no analytical detail regarding how the knowledge learned in the internship is applied and the additional skills learned during the program, while these two methods include a grade of pass or fail and the level of satisfaction and performance. Thus, we have yet to establish how much knowledge has been absorbed and how it has been applied in the internship.

As CCMS internships aim to align academic knowledge and practice in ten weeks in the natural professional environment, Donald L. Kirkpatrick's Framework (1959) is helpful in assessing the effectiveness of training and learning (Kirkpatrick, 1959). Kirkpatrick identifies four levels to evaluate training effectiveness: reaction, learning, behavior, and results (Kirkpatrick, 1994). In addition, he has differentiated the experience by grouping reaction and learning under the term "consumptive metrics" because they measure results based on the learning resources consumed. This leads to the main research question. Are the learning resources (learned during the undergraduate course) consumed during the internship? This study aims to determine whether the resources students have acquired during the first three years of their course study are utilized during the internship. We use Kirkpatrick's questions at both levels to answer the research question. Table I summarizes these questions into three inductive themes for reaction and three pieces for learning (Figure 1).

Table I. 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?

According to Kirkpatrick, experiential learning occurs on four levels: reaction, learning, behavior, and results. Reaction and learning are consumptive metrics, as they relate to the learning resources consumed during the internship, while impact metrics relate to outcomes (Figure 1).

This study examines consumption metrics by measuring course enjoyment, training enjoyment, training relevance, and training context, as well as the size of learning by evaluating knowledge gained, experience gained, and professional advancement. Among the most effective experiences for improving learning are live-case study projects and internships (Miles and Huberman, 1994). For Kirkpatrick's framework, experiential learning can be defined as learning from experience or education by doing (Lewis and Williams, 1994).

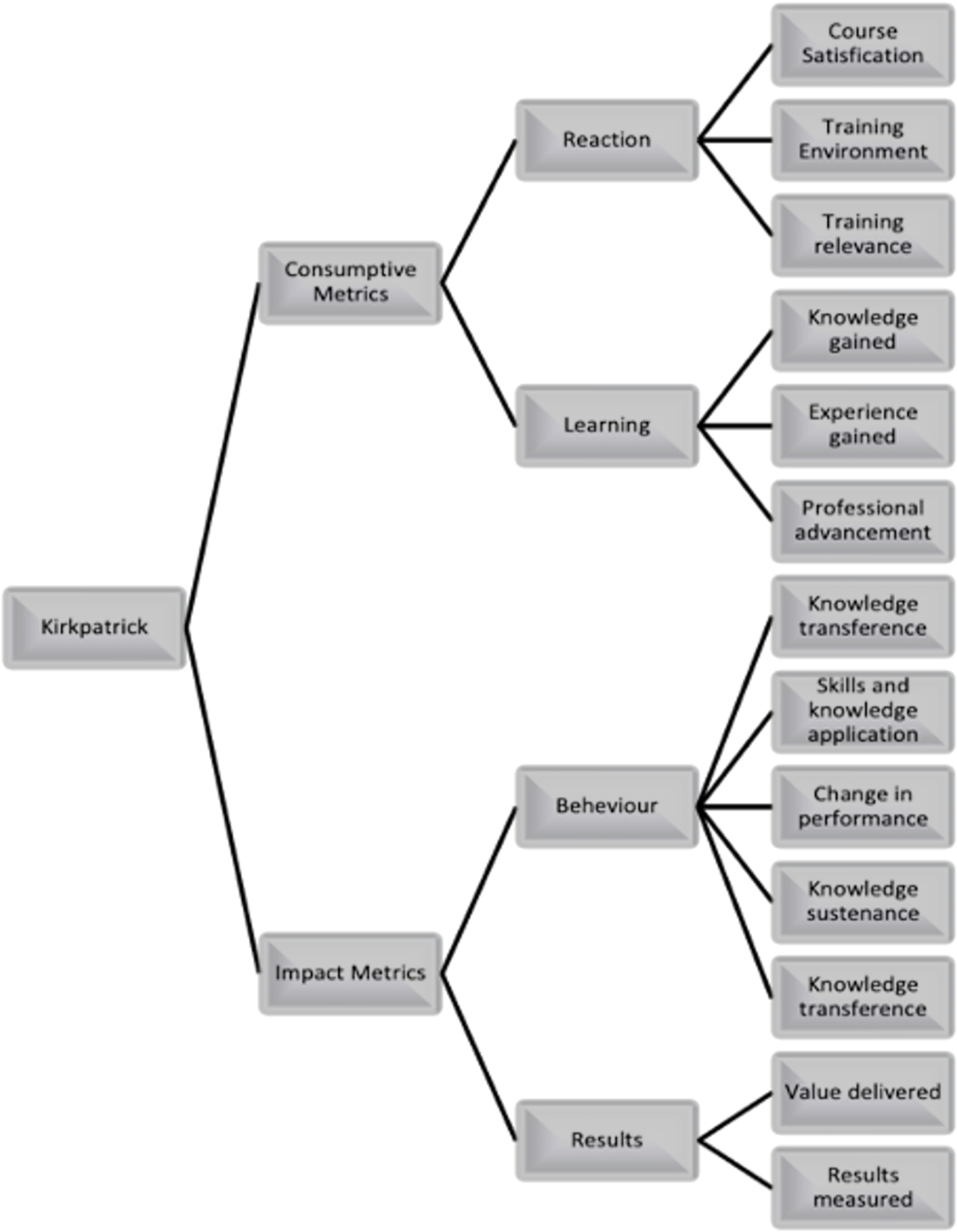

Figure 1. Measurement of consumptive and impact metrics (adapted from Kirkpatrick)

A. *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). A practical work placement at the end of the degree program has long been an important part of experiential learning in CCMS. In this way, internships are becoming an increasingly important form of experiential learning (Bird, Chu, and Oguz, 2015), involving concrete experience abilities, reflective observation abilities, conceptualization abilities, 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 at CCMS.

B. *Integrating Learning into Practice*

According to Knouse and Fontenot (2008), internship experience gives students an advantage in the job market. An undergraduate internship is among several high-impact practices (HIPs) associated with deep learning, self-reported gains, and effective instructional practices. HIPs have a variety of characteristics, including being engaging, utilizing active learning practices, facilitating learning outside the classroom, requiring meaningful interaction 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 starting 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 with respect (Rothman, 2007). The extent of knowledge integration into practice can demonstrate the overall success of an internship program in the form of learning-and-practice enhancement in ten different domains (Figure 2). It is important to note that not every student who participates in an internship absorbs all the skills they learn because of challenges they face during the prior learning process, during the internship learning process, and in practice.

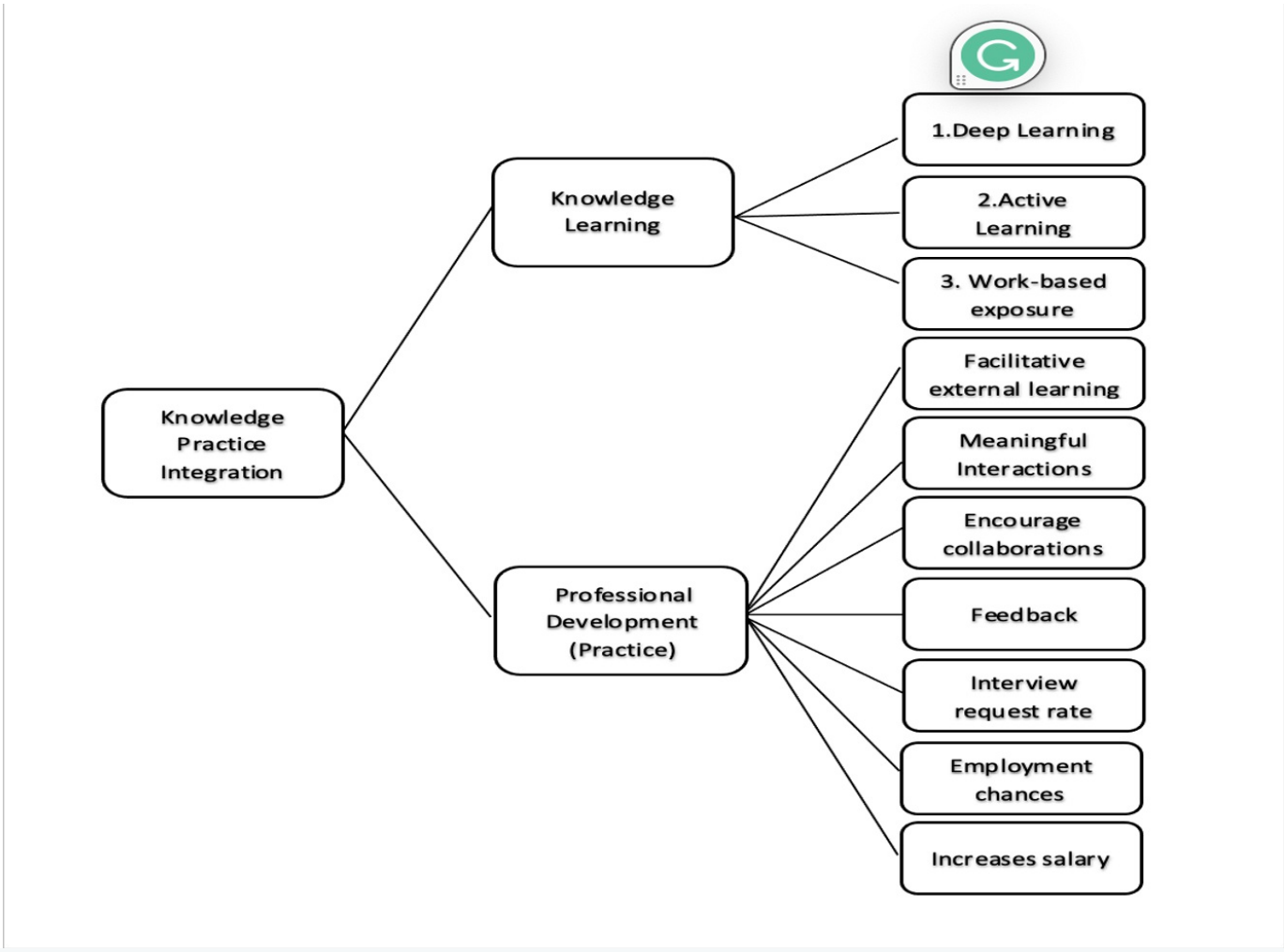

Figure 2. Integrating learning into practice

Methodology

This study examines the relative strengths and weaknesses of the two constructs of experiential learning for CCMS students through their onsite internship experience. We, therefore, follow the method of inductive reasoning, which begins with specific observations and moves to broad generalizations based on inductive reasoning. The researchers conducted a content analysis of the internship reports from 20 students who interned on-site during the spring semester of 2022. Content analysis involves the use of replicable and valid methods to evaluate the content of observed communications (Krippendorff, 1980). Researchers are able to sift through large amounts of data using the content analysis method. It can also be used to examine trends and patterns in documents and to monitor changes in public opinion (Stemler, 2000). Using (Krippendorff, 2018) as a principle, the researchers determined that data appropriate for content analysis include texts whose meanings are identifiable, including written documents.

Qualitative research allows us to gain insights into the human condition in various contexts and perceived situations (Bengtsson, 2016) that our interns experience in various organizations. We have used a qualitative approach in this study, involving holistic inquiry into the internship process and inductive data analysis based on predetermined constructs. Our

article describes the effectiveness of internships in CCMS's communication and media study courses in terms of knowledge and practice.

Analysis of Data

To analyze the data, NVIVO 12 qualitative research software was used. We uploaded the final internship reports of 64 students who completed the internship program. The report provides a detailed look at what they learned and experienced during the 10-week program. Using the inductive nodes (two constructs) and their sub-nodes (six themes), we identified and categorized the declarative statements made by the interns. As a method of categorization, it follows Miles and Huberman's (Miles and Huberman, 2014) guidelines, which state that the researcher may employ innovation, word count, and frequency in the analysis of qualitative data. As a result, we evaluated the node strength using word count and frequency.

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

Table II 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 a 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 at 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 II. Coverage of reaction and learning in consumptive metrics

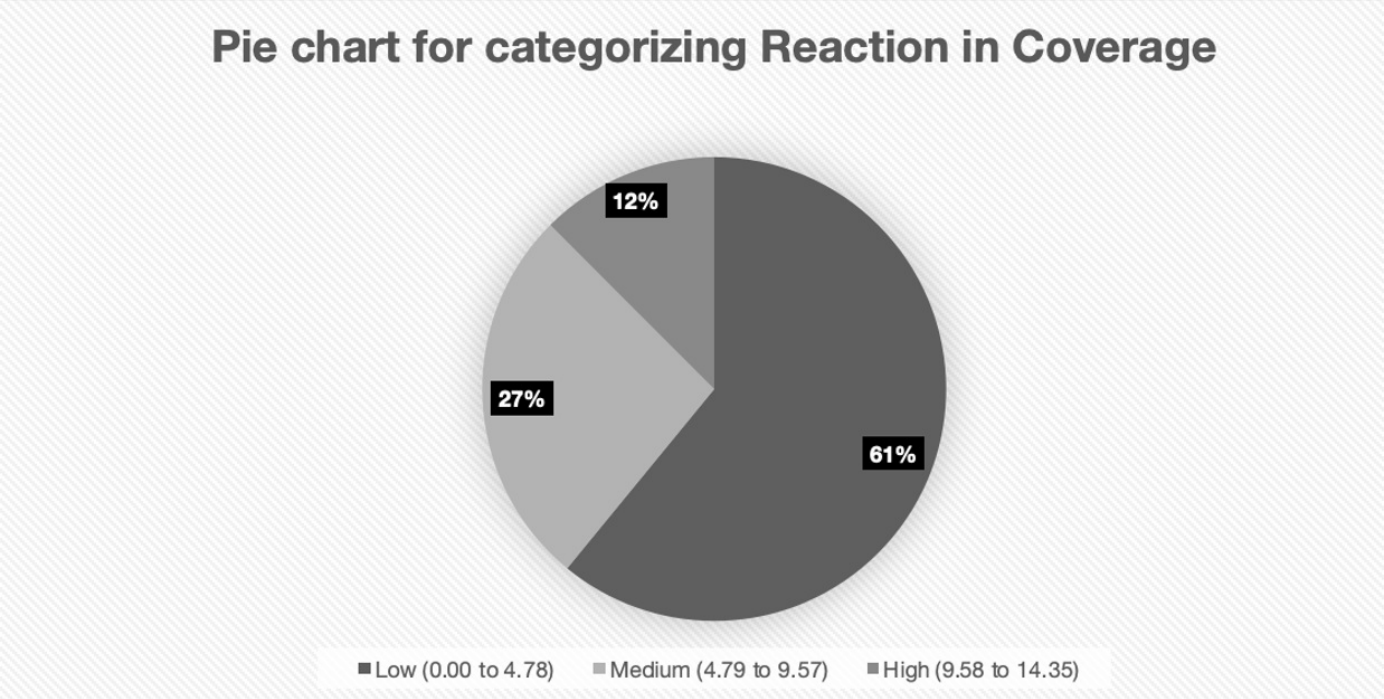

Figure 3. Pie chart for categorizing reactions in coverage

In this section, we look at the percentage of students who scored high, medium, and 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 these 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 due 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 (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.

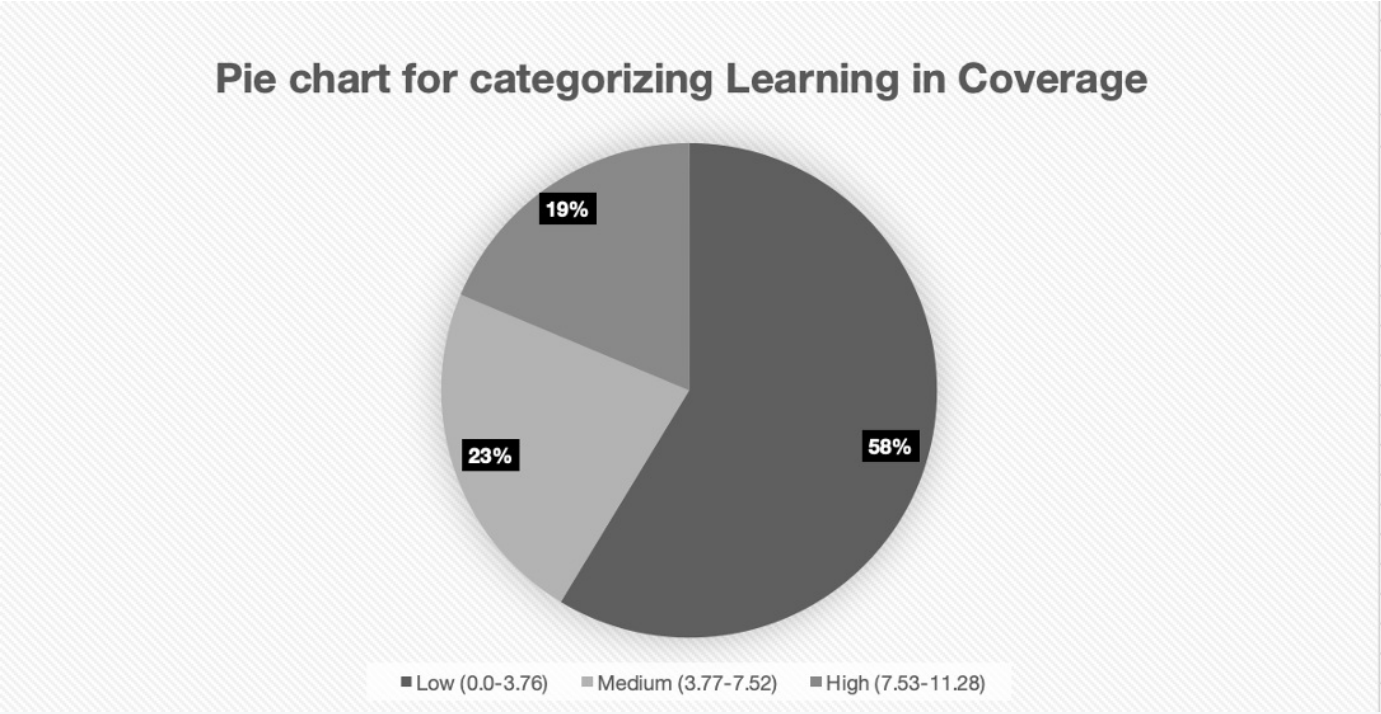

Figure 4. Pie chart for categorizing learning in coverage

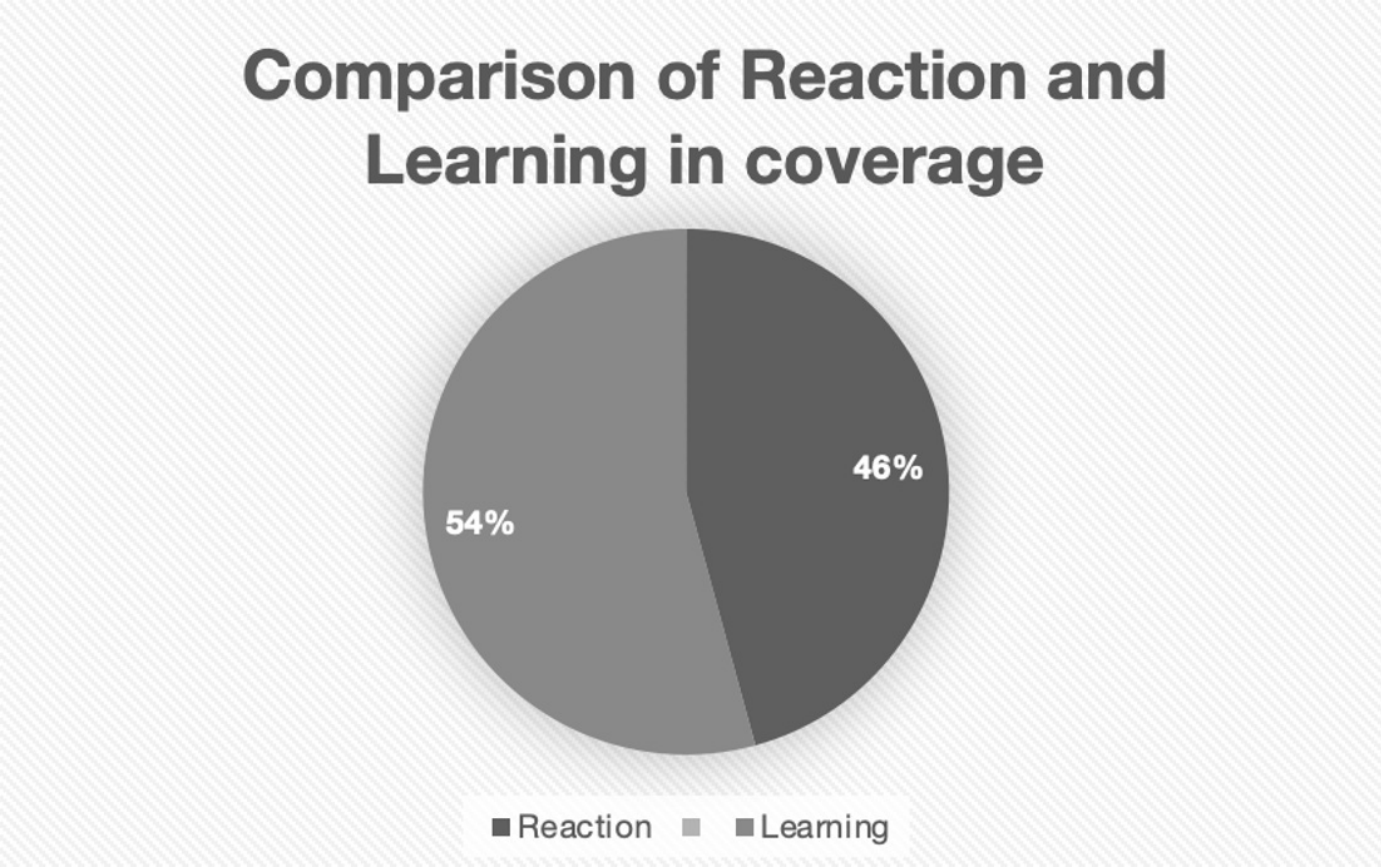

Figure 5. Pie chart illustrating a comparison of reaction to learning from a coverage perspective

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

Table III 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 the internships, we observed that it does not assist students in their career advancement. This finding correlates with the measurement under coverage.

Frequency_References

	Reaction				Learning			
	A : 1.1 Course Satisfaction	B : 1.2 Training Relevance	C : 1.3 Training Environmen t	Reaction	D : 2.1 Knowledge Gained	E : 2.2 Experience Gained	F : Advanceme nt	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 III. Frequency of reaction and learning in consumptive metrics

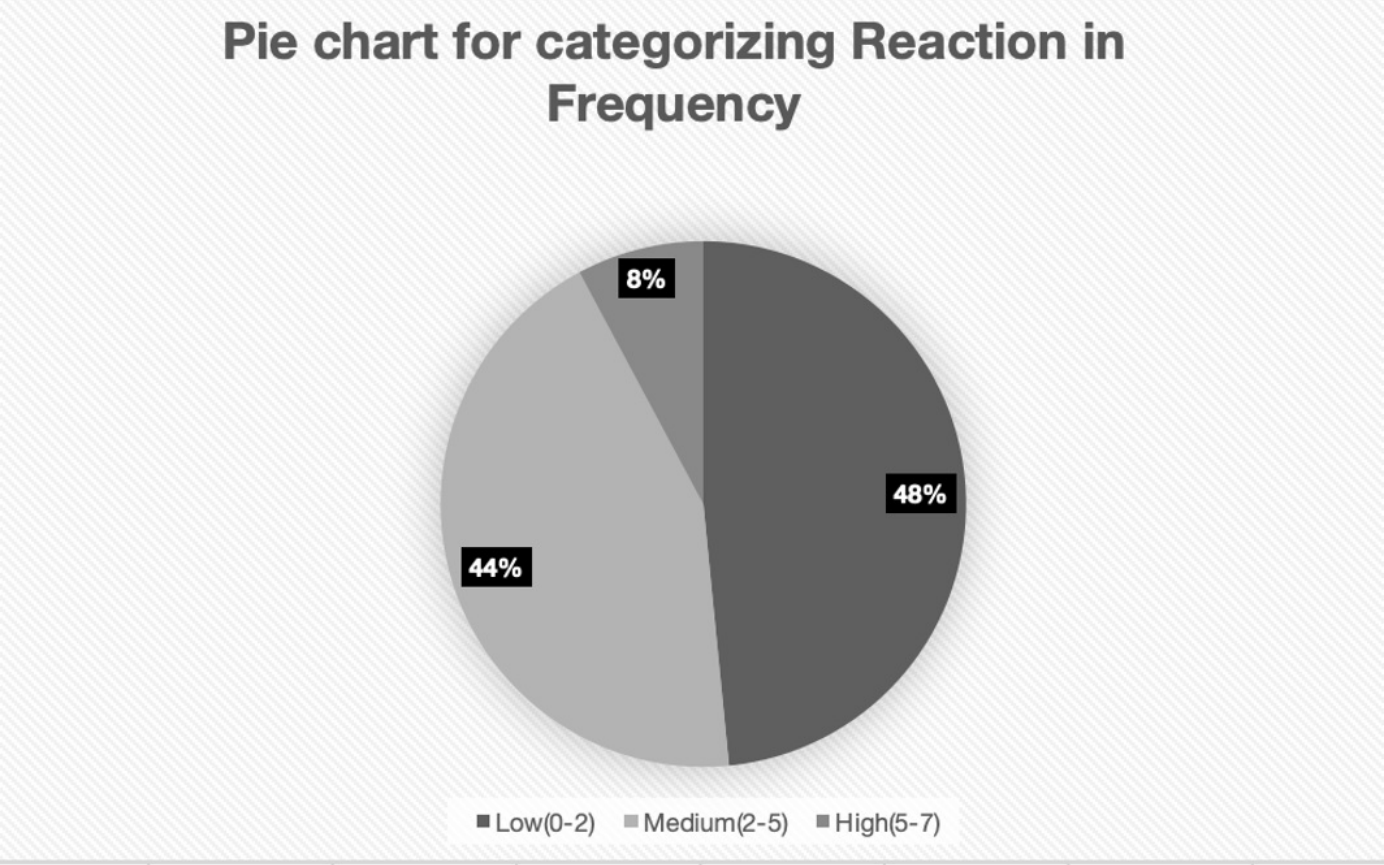

Figure 6. Pie chart for categorizing reactions in frequency

To evaluate the relative strengths of each construct and the associated themes, we used the overall range of 'reaction' (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 (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 (Figure 7). This again reveals the need for alignment between academic concepts and applying these concepts into practice. This corresponds to the observation from coverage, where most students had low ratings on 'reaction' and 'learning.'

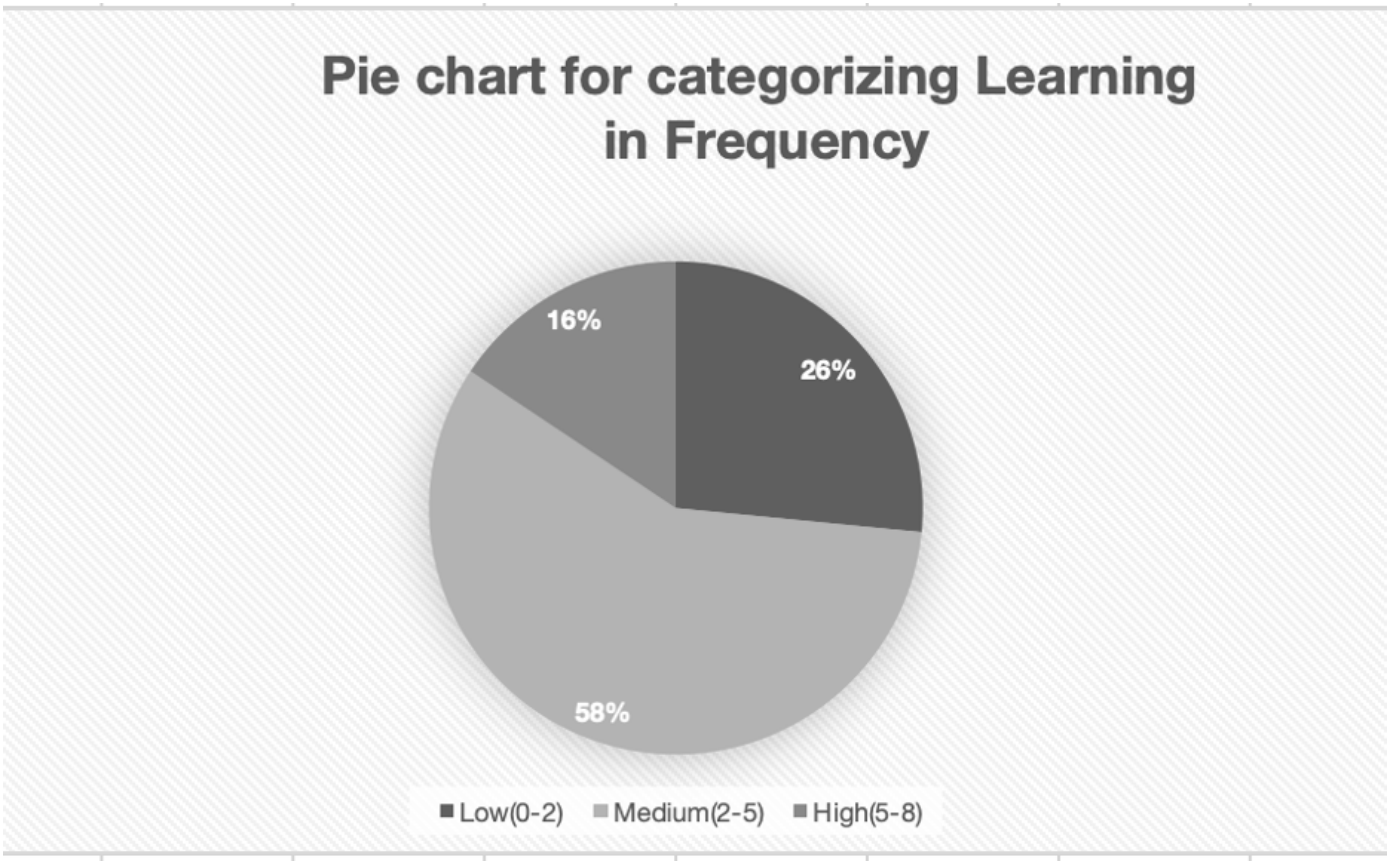

Figure 7. Pie chart for categorizing learning in frequency

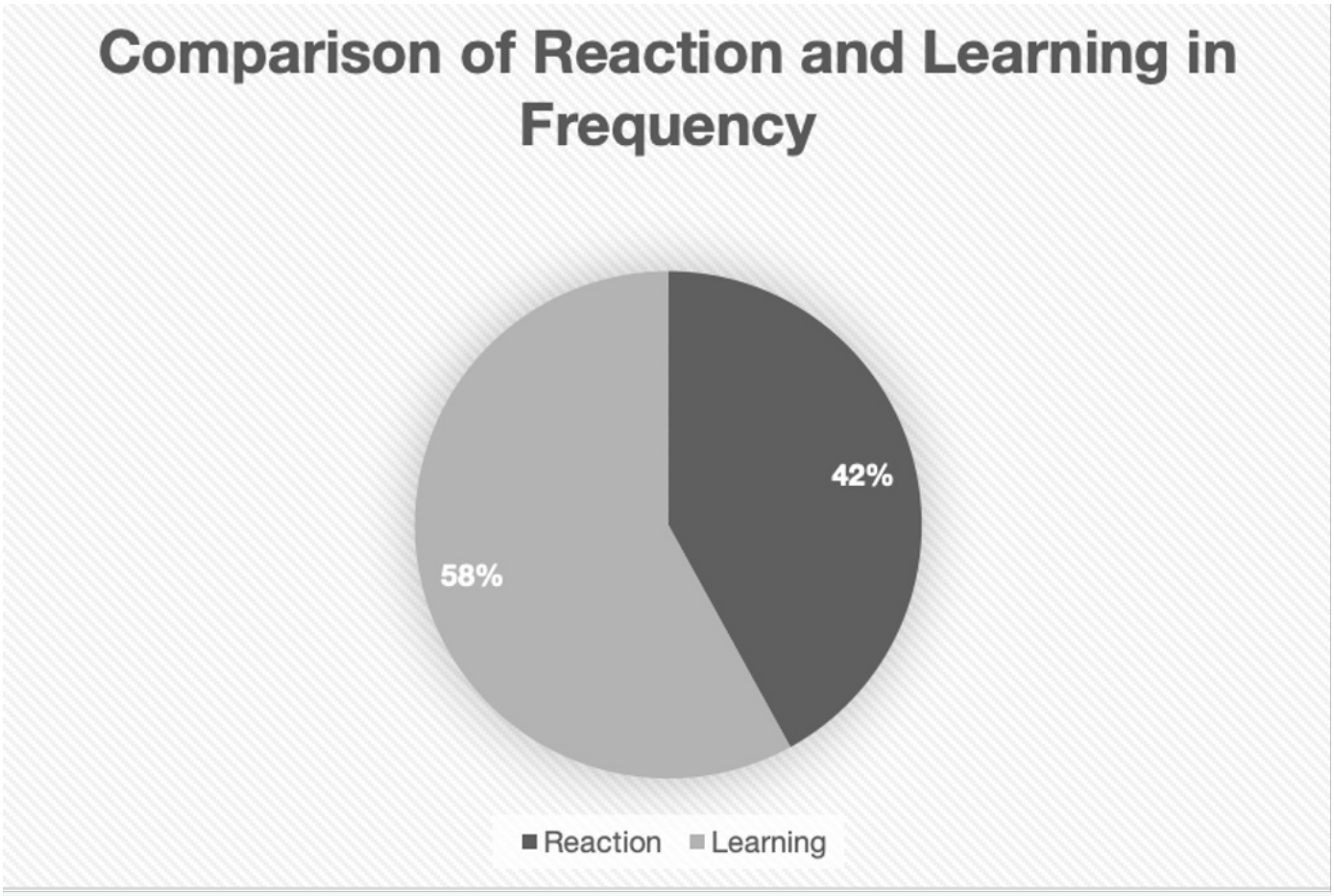

Figure 8. Pie chart illustrating a comparison of reaction to learning from a frequency perspective

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 IV. Comparison of coverage (C) with frequency (F) for the 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%

In this paper, we used consumptive metrics to evaluate and measure the alignment of academics with practice based on the internship reports of 64 students. We found that students learned critical skills and gained extensive knowledge from the internship program. However, the extent of learning resources consumed during the internship program is limited. This leads to low alignment between theory and practice.

Conclusion

Internships in the undergraduate program aim at seamlessly integrating, assimilating, and applying the 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, our 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. This requires further research to identify the critical factors for aligning theory with practice.

The main limitation of this research is the small sample. Hence, subsequent project phases aim to measure consumptive metrics with a larger sample and compare onsite internships with online internships (during COVID-19). This can provide a measure of alignment to compare and reveal challenges faced in the online internships that our interns undertook during the COVID-19 period.

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