Career Readiness and Employment Expectations: Interdisciplinary Freshman Experience

Teresa E. Simpson[1], Mahdi Safa[2,*], Alexandra Sokolova[3], Paul G. Latiolais[4]

[1]Director, Student Development & Leadership, Lamar University, Beaumont, TX 77710, U.S.
[2]Engineering Technology, Sam Houston State University, Huntsville, TX 77340, U.S.
[3]Student Research Assistant, Lamar University, Beaumont, TX 77710, U.S.
[4]Director of the CICE, Lamar University, Beaumont, TX 77710, U.S.
*Corresponding author: mxs167@shsu.edu

Abstract The growing concern about employment outcomes adds to existing pressures on students to make career decisions early in the college experience. This study was designed to investigate the alignment of student career readiness obtained through quality programming targeting student success learning outcomes as designed by student affairs practitioners at Texas public institutions to those employers surveyed by The Hart Association for the American Association of College and Universities. This study revealed that there is an alignment between student affairs learning outcomes and employer's expectations for career readiness. The results of this study show a need for common terminology across constituent groups making the student more comfortable in using their co-curricular activities as transferable skills during the interview process. An ideal co-curricular experience that will merge the development of such common langue is an innovative First Year Experience Course as presented in this article.

Keywords: interdisciplinary courses, planning and designing courses, project-based learning, experiential learning

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1. Introduction

Higher education institutions are concerned about graduates getting a great job placement because it is an outcome expected by students; it contributes to a positive image of the institution, and it can help provide accountability for institutional programs. Due to increases in both the cost of higher education and in competition among institutions for students, colleges are becoming more consumer-oriented and concerned with the satisfaction level of their students. Institutions have become more concerned with meeting students' expectations about their college experience and related career goals and face increasing pressure to demonstrate the value of programs and services offered [1].

The intention of this article is to provide guidance to faculty members who want to become involved in the creation and implementation of a successful course that integrates diverse components of various disciplines and provides curriculum that fosters future graduates with necessary skills to succeed. The program is designed based on the research findings that highlight important of designing career readiness programs that provide learning outcomes to meet employer expectations.

This paper discusses critical dimensions of personal growth that better prepare students for success in their profession. The all-university Interdisciplinary Freshman Experience puts students of diverse backgrounds and interests into groups to work together toward a common goal. In achieving their specified goal, students will learn teamwork, problem evaluation, problem solving, time management, creativity, innovation, and interpersonal communication. The Freshman Experience is highly experiential in nature and will build bridges between diverse disciplines that do not traditionally interact in the undergraduate curriculum such as humanities, social sciences, natural sciences, engineering, computer science, and business.

Group project-based learning is the most effective way to acquire material and information across to students of all backgrounds, to keep those students motivated in their field, and prepare them for their professional lives. The ability to work in an interdisciplinary group setting is a crucial skill for a college graduate. Professionals in almost every field are required to work in groups of people from varying backgrounds to achieve a common goal, and many have a difficult time adapting to this setting. To prevent this, a program could be implemented early in a student's college career that prepares them for challenges of professional world and puts them in the right mindset to work with people who are not like-minded.

Employers want their employees to use a broader set of skills and have higher levels of learning and knowledge than in the past to meet the increasingly complex demands they will face in the workplace. Within this context, to the

degree that employers' emphasis on hiring will be affected by the economic downturn, the shift will be toward greater emphasis on hiring four-year college graduates [2].

Only one in four employers thinks that four-year colleges are doing a good job in preparing students for the challenges of the global economy. A majority of respondents think that both two- and four-year colleges need to make at least some improvements to prepare students for the global economy, including one in five who thinks that significant changes are needed [3].

1.1. Group Project-Based Learning in Interdisciplinary Setting

Project-based learning grants students an opportunity to apply and develop skills and knowledge to solve problems present in real life (Nation 2008). Within the UK policy, there has been strong emphasis on improving participation and retention in higher education while providing students with important employability skills during their college career [2]. Larmer and Mergendoller [4] state that essential elements of project-based learning include: starting with a compelling question or challenge, creating a desire to acquire or create new knowledge, incorporating feedback and revision and rendering students' voice and choice.

Project-based learning emphasizes the importance of learning by doing [5], therefore traditional lecture-test concept becomes less appealing.

Development of such a program requires recognition of the significance of different knowledge structures and practice of learning in different contexts and how they interrelate [6]. It is supported by contemporary theories such as threshold concepts, semantic gravity [7], student-as-producer (e.g. [8]), and meaningful learning [9]. These concepts are emphasized in the integrated depiction of the theoretical basis of the programme offered.

Studies have found a correlation between development of specialist work-related skills and knowledge in a process of gaining confidence [10,11,12,13,14]. Especially with rising competition for jobs, transferable skills and an ability to perform assigned duties while continuing to professionally develop are in the spotlight [15].

According to employers, and as reported through NACE research, the most effective way for graduates to stand out among the crowd is to prove they possess outstanding credentials in a number of non-industry specific desired skill areas. The 2010 Job Outlook, an annual NACE publication, listed these desired characteristics as, in order of importance, communication skills, analytical skills, teamwork skills, technical skills (as related to major), and a strong work ethic [16]. These skill areas are the top five desired skills. In combination, students want to see extracurricular and academic programs.

The intellectual merit of the Freshman Experience is advancement of knowledge through a deeper understanding of how multiple disciplines work together to solve industrial and advanced societal challenges. The course enables students to comprehend the nature of controversy, the causes of scientific and technological change, the relationship of culture and practice, and the limits of rational analytical methods in characterizing complex problems. Broader impacts include recruitment, retention, reputation, and exposure to trending technology and current corporate principles.

The Freshman Experience program reflects a dawning recognition that strict specialization does not fully prepare students to respond knowledgeably and reflectively to the most important challenges in today's society. Through this experience, students will develop awareness that most problems in industry and society are interdisciplinary in nature. The result will be graduates who value diversity and are prepared to solve problems through collaborative efforts – skillsets in high demand by employers. This program will foster new generation of graduates who will have acquire critical thinking skill, problem solving, collaboration, and various forms of communication skills, often knows as "21st Century Skills" to achieve their goals [17]. The growing concern about employment outcomes adds to existing pressures on students to make career decisions early in the college experience. These pressures may be imposed on students by themselves; their families; the financial implications of changing majors, which may result in additional time and expense to complete a degree; and a campus social system in which students are primarily identified through affiliation with an academic program.

Constructivism is a crucial component of project and research and project-based curriculum because it aids students in building their own understandings of certain topics. It can help students engage in their work and make sense of the material [18] and reflect on their enquiry [19,20]. Project based teams allow students to work in interdisciplinary groups, which teaches them to learn in a more meaningful way [21]. Students become more interested and motivated if presented with hands-on research opportunities and decreasing the probability of dropping out [22]. Constructivist and project-based learning allows students to bring forward their prior knowledge as well as absorb that of their peers for an enhanced classroom learning experience when compared to a traditional lecture-based curriculum. This type of instruction promotes lifelong learning through asking questions [18].

Courses that implement project-based learning must be carefully organized. In 1995 and 1996 an innovative freshman-level statistics course was offered at the University of Wisconsin – Madison centered on "mentored, small-group, collaborative activities that simulated complex, real-life problem solving." The class included freshmen from very different backgrounds possessing different interests and concentrated on developing students' "inquiry and decision-making" as opposed to simply providing information and formulaic material that the students could memorize and repeat. While this study was successful overall, it resulted in students being displeased with how demanding the class was for the amount of hours, showing that an appropriate number of hours must be carefully planned out and allocated for a course such as this to work [23]. Another important aspect of a project-based, professional development course is site visits. Site visits are a very useful tool in helping expose students to the real-life inner workings of their fields. Students can appreciate their field more and can gain insight into important problems, responsibilities, and tasks undertaken by the professionals working in them. Site visits provide

important instruction and information that cannot be acquired anywhere else [24]. When introduced into a college course, site visits do not even need to line up with the current lesson of the class, because the information gathered at the visits can be discussed at the end of the semester when summing up everything that was learned. Doing this allows connections to be drawn between lessons and seeing the course content as a whole, rather than individual sections in a textbook [24].

A primary reason for developing a project management course is not inly increasing the overall quality of education, but also increasing student retention. Student retention at the university level depends on many factors, including the students' interaction with their courses and the university, the learning environment, the quality of education, and levels of motivation. To maintain high retention, academic programs must be high in quality and encourage a sense of individuality in the students; therefore, things like class size and quality of education play a large role in making sure students do not drop out of the university [22]. Factors such as school organization, classroom structure, timetable, teacher qualifications, collaborative planning time, and approach to assessment have been found to play a vital role in the implementation of the projects and in student learning [25]. It is important to focus on the students, especially freshmen, and enact effective retention programs to aid in their development. These students need clear expectations, helpful advice and support, and ties to peers and faculty in order to become successful and see the relevance of what's presented to them [26]. University teachers who demonstrate an ethic of care and are able to establish a safe learning environment are most likely to be considered good teachers by the students. It's important for teachers and students to communicate with one another and to rise to the challenges present in the relationship, individual control, and overall goals [27].

1.2. Benefits of Interdisciplinary Studies

Interdisciplinary diversity courses and a multi-ethnic multi-lingual college experience prepared students for a diverse world of work. It also promotes a psychological development known more as ethnic identity, which leads to a secure sense of self [28].

A freshman level course focused on interdisciplinary project groups would benefit them greatly in the long run. A study that observed the organizational processes of elementary school girls doing a project concluded that this process of research at such a young age helped the girls to picture themselves as "leaders who could make changes." The girls formed meaningful connections with the adults that advised them through the process as well as with their peers. They also learned the crucial skills of data presentation, time management, and public speaking [29,30]. Another study that focused on new curricular ideas in a middle school mathematics class recognized the merit of a challenging, inquiry-focused classroom. "In particular, teachers need to engage students in more challenging tasks and facilitate opportunities for rich mathematical discussions of those tasks," [31]. An introductory course aimed toward new students at a university would allow them to see what they will be getting into in their professional lives from the very beginning. A course such as this should put heavy focus on hands-on learning for the new students and should encourage the creativity, problem solving, and mindset that they will need when going into their careers after college [32].

Universities have acknowledged the increasing significance of producing college graduates with the skills to meet the challenges of today's society [33]. Instructors struggle with difficulties in teaching technical courses to freshmen who have not experienced similar courses at the high school level [34]. To help students overcome deficiencies and experience success, faculty members are modifying teaching strategies to make instruction relevant and meaningful. Students are given more flexibility in scheduling, assignments, and pacing [35]. Universities failing to recognize and adapt to student needs may suffer declining enrollment as students seek excellence in education elsewhere [36].

First-year programs have been shown effective in retaining students [37,38,39], increasing GPA [39], and providing a broader understanding of the engineering discipline [40]. Olds and Miller [41] report that an integrated seminar course benefited students in several ways, including their academic major selection. Budny [42] reports on a successful first year engineering seminar that utilized peer mentors as contact points that provided encouragement and guidance. Cuseo [43] studied the outcomes of many first-year engineering seminar programs at different institutions and concluded that, in general, many of the programs produced higher retention rates, higher graduation rates, shorter degree completion times, and higher GPA. Padgett et al. [44] found that first-year overview courses can enhance students' life-long learning orientations and positively impact complex learning processes. Franchetti [45] showed that integrating case studies and discussion topics into first year courses improved student retention rate, GPA, higher cognitive learning, self-efficacy, and overall satisfaction of the course. Hands-on project based activities integrated into the freshman curriculum have also been shown to positively impact student performance. Kalkani et al. [46] reported that hands-on projects make students appreciate the values of cooperation, performance of tasks, quality of results, and reporting effectiveness. Behrens et al. [47] reported that freshmen hands-on projects can improve programming skills, enhance motivation, and enable the peer learning process.

In response to the effectiveness of first year, experiential curricula sited by research, the Interdisciplinary Freshman Experience is proposed. Research indicates that courses should be created with the goal of developing students' capabilities required by industry and society. Universities should strive to teach students how to cultivate innovative knowledge so they can thrive among the intense competition in today's workplace [48].

1.3. Employer Expectations and Findings

This study identifies and evaluates the most effective and efficient programs offered by student affairs professionals and a comparison to employers' expectations of career readiness to provide an effective

guideline to create a Freshman Experience Program. The overarching question for the study was to identify if student affairs' practitioners are designing quality learning outcomes that are meeting the needs of employers' expectations for career readiness and if they are, what programs are they designing to achieve their targets?

Research Question One: Is student career readiness being achieved through student affairs designed learning outcomes to meet the needs of employer expectations for career readiness at Texas public universities?

*H*1. There will be a statistically significant relationship between employer expectations and student affairs learning outcomes. There will be a statistically significant positive relationship between employer expectations and student affairs learning outcomes.

Research Question Two: What are the top three programs from each institution that have met targeted outcomes of student success through Career Readiness? Programs will be examined, compared, and contrasted as to the top programs rendering career readiness outcomes.

*H*2. From the regional consortium of student affairs practitioners who conveniently selected from Texas public institutions, there will be a statistically and positive relationship between the top three employer learning outcomes and the top three student affairs career readiness outcome designed programs.

2. Methodology

Employers are demanding career readiness from new graduates [49]. In 2006 the Society of Human Resource Management conducted a national study and its affiliates to include ETS sent to corporate employers both domestic and global. Their study found that employers want higher accountability for higher education to produce a globally prepared, high quality workforce.

Later in 2010, the American Association of Colleges and Universities had Hart Research and Associates conduct their like outreach to employers. The response was much of the same. Those core learning domains are being used in this study. On December 9, 2011 the new core was launched as realigned by the Texas Higher Education Coordinating Board. This charge was made by MacGregor M. Stephenson the current Assistant Chancellor for Academic Affairs and Research and the Texas Higher Education Coordinating Board to Presidents and Chief Academic Officers of Texas Public: Universities and Health-Related Institutions as well as Presidents and Chief Instructional Officers of Public Community and Technical Colleges and Undergraduate Education Advisory Committee Members. The new core curriculum is designed to meet the needs of the 21st century workforce and was applied Fall 2014.

A quality workforce is a requirement from employers seeking a globally prepared quality workforce. The new core objectives for the State of Texas Public Colleges and Universities are now:

- Critical Thinking Skills – to include creative thinking, innovative, inquiry, and analysis, evaluation and synthesis of information
- Communication Skills – to include effective development, interpretation and expression of ideas through written, oral and visual communication

- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- Teamwork-to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- Personal Responsibility – to include the ability to connect choices, actions and consequences to ethical decision-making
- Social Responsibility - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities [50].

In response, are Student Affairs providing programs to prepare career ready graduates? What are the top three learning outcomes in career ready programs? What are commonalities among Texas four year public universities? A major way to address the demand for quality applicants as requested through the Employer Survey produced by the American Association of Colleges and Universities, 2010, is through comparing whether student affairs' services are designed to provide an enriched environment that allows for the holistic development of the student, thus providing a quality developed graduate that meets employer expectations. The Harts Research Associates have worked with higher education both public and private and corporate America. They were founded in 1971 and are one of the leading research firms in the United States and have been at the cutting edge of change in the field for more than three decades. Among the topics they have explored in their research is the value in a liberal education in today's job market to image and reputation studies for public and private colleges and universities, to the cost of higher education.

A partial client list for higher education is: Achieve, Inc, Bucknell University, The College Board, Duke University, ETS, The Gates Foundation, George Washington University, UPromise to include the American Associations of Colleges and Universities. The credential list of the Hart Research Association continues. Hart Research Associates partial client lists of corporations consists of: American Airlines, Boeing, Coca-Cola, General Motors, IBM, Microsoft, Procter & Gamble to name a few (heartresearch.com). The purpose of this quantitative study is to evaluate programs designed by student affairs' professionals That Achieve Career Readiness Outcomes.

2.1. Research Design

This study was a non-experimental exploratory design using a convenient sample of regional consortium of student affairs practitioners. The study sought to use the Hart Associate research as a way to examine current student affairs programming and outcomes. A majority of employers believe that colleges should place greater emphasis on a variety of learning outcomes developed through a liberal education, which include the following:

Knowledge of human cultures and the physical and natural world [49].

- The ability to communicate effectively, orally and in writing (89%)
- Critical thinking and analytical reasoning skills (81%)

- The ability to apply knowledge and skills to real-world settings through internships or other hands-on experiences (79%)
- The ability to connect choices and actions to ethical decisions (75%)

2.2. Instrumentation

The instrument was refined from the Hart Association's previous work on student affairs. The instrument was designed using the online survey platform of surveymonkey.com and was designed into three sections. Respondents were asked in section to indicate their degree of agreement with each statement on a five (high) to one (low) Likert formatted scale. The sections consisted of four subscales (see Table 1).

Table 1. Four Subscales of Section I

Name	Range	Abbreviation
Global and Technical Diversity	(5-25)	GTD
Intellectual and Practical Skills	(8-40)	IPS
Personal and Social Responsibility	(4-20)	PSR
Integrative and Applied Learning	(1-5)	IAL

Section I consisted of a five point Likert scale used to determine Student Affairs Professional responses. Respondents were asked to identify the importance of the area on a scale from strongly disagree (1) to strongly agree (5) that they design career readiness experiences to achieve essential learning outcomes to meet expectations of employers.

Section II consisted of open-ended questions where respondents were asked to identify the top three programs at their institutions. A second part asked the respondents to identify one learning outcome associated with each career readiness program. This information was used to validate that the learning objectives that had been achieved from the targeted outcomes.

Finally, section III selected demographic data was requested. This was in an effort to ensure representation from various institutions. Respondents were asked to identify their institution. To ensure confidentiality, the name of the institution was not linked to any respondent and names are not reported in further analysis. After review of the data, this information was used to reclassify on university category's size and urban vs. rural categories. The data was cleaned up to reflect the Texas Higher Education Coordinating Board's classification and size of institution.

Prior to administering the instrument, a pilot was sent to three student affairs professional experts. The experts held the titles of Associate Vice Chancellor of a Large System, Provost from a Medium size institution and Vice President of a small institution. The instrument was sent by email and asked to provide content validity reviews for the instrument. It was determined that a .66 CVI was necessary to make changes or accept the instrument. The CVI returned as a .667 and resulted in slight modification in word choices. But no significant additions or deletions in content were made. Content validity refers to inferences that are made from the nature of the measurement and interventions used to the constructs they purportedly [51].

2.3. Data Analysis

Data analysis was carried out in several steps:
1. One way Anova were conducted to ensure that all respondents could be considered a total population.
2. Creation of a sub scale and total scores for section one
3. A Pearson correlation coefficient between subscale and total scores were conducted. Comparison between the top three ranked programs and their outcomes to the national data for the Hart Association survey.

A Cronbach's Alpha for reliability was used for Likert formatting. In section 3 the CVI context validity index was used to examine validity.
- Frequencies were identified
- One way Anovas were used to determine that all of the sample comes from the same populations
- A refined tool was used to conduct H0 testing.

3. Findings

Table 2. Subscale Means and Standard Deviations

		Frequencies			
		GTD	IPS	PSR	IAL
N	Valid	179	251	144	36
	Missing	73	1	108	216
Mean		3.69	3.88	4	4.03
Std. Deviation		1.029	1.007	0.989	1.055

Only seventeen of the 36 respondents completed section two and three. The researcher added in a question about the name of the institution to ensure that respondents accurately identified their institution. During initial review of data, it became apparent that several respondents had misrepresented size of the institution. Utilizing Texas Higher Education Coordinating Board data the researcher corrected the data to enhance accuracy. To ensure confidentiality of the institution and respondents, the name of the institution was then separated from any data then further analyzed. There were several that were corrected in size and only corrected data was used in data analysis and reporting. There were more respondents from urban institutions. Therefore, more rural areas were represented. A typical respondent was from a rural medium size institution.
*Urban is n= 7, 4*1.2% and Rural n=10,58.8%.

The researcher was looking for .05. If data analysis reports less than .05 there is a significant difference based on demographic information. In Rural and Urban the researcher find this significant in different in question 10, Creativity and Innovation and question 15, Intercultural knowledge (global issues) as seen in Table 3. Researcher also finds significantly different responses in Size of Institution shown in Table 4. The significantly different responses are in question 9, Teamwork Skills in Diverse Groups and question 14, Intercultural Competency (Teamwork in Diverse Groups). Researcher identifies the keyword is "Teamwork". Further analyzing the difference in such demographic responses will be further discussed in chapter five as recommendations for further study.

Table 3. Total Subscale Score and Mean Score by Individual Respondents

GTD	GTD2	IPS	IPS2	PSR	PSR2	IAL	TOTAL	TOTAL2
21	4.2	33	4.71	20	5	4	78	4.59
12	2.4	17	2.43	10	2.5	2	41	2.41
17	3.4	27	3.86	14	3.5	3	61	3.59
20	4	28	4	16	4	4	68	4
18	3.6	29	4.14	19	4.75	5	71	4.18
19	3.8	29	4.14	18	4.5	5	71	4.18
20	4	28	4	16	4	3	67	3.94
20	4	21	3	14	3.5	2	57	3.35
21	4.2	26	3.71	19	4.75	5	71	4.18
21	4.2	31	4.43	19	4.75	5	76	4.47
19	3.8	30	4.29	16	4	3	68	4
17	3.4	30	4.29	16	4	4	67	3.94
21	4.2	33	4.71	18	4.5	5	77	4.53
15	3	29	4.14	13	3.25	4	61	3.59
16	3.2	31	4.43	18	4.5	5	70	4.12
15	3	27	3.86	16	4	4	62	3.65
20	4	28	4	16	4	4	68	4
21	4.2	21	3	16	4	4	62	3.65
19	3.8	28	4	19	4.75	4	70	4.12
17	3.4	32	4.57	15	3.75	5	69	4.06
17	3.4	31	4.43	14	3.5	4	66	3.88
19	3.8	27	3.86	16	4	4	66	3.88
23	4.6	29	4.14	16	4	4	72	4.24
21	4.2	32	4.57	17	4.25	5	75	4.41
5	1	7	1	4	1	1	17	1
22	4.4	29	4.14	16	4	5	72	4.24
19	3.8	25	3.57	18	4.5	4	66	3.88
12.5	2.5	18	2.57	10	2.5	2	42.5	2.5
19	3.8	29.17	4.17	16	4	4	68	4
21	4.2	28	4	17	4.25	5	71	4.18
20	4	26	3.71	17	4.25	5	68	4
17	3.4	29	4.14	15	3.75	4	65	3.82
24	4.8	32	4.57	20	5	5	81	4.76
19	3.8	32	4.57	20	5	5	76	4.47
16	3.2	18	2.57	13	3.25	3	50	2.94
19	3.8	29	4.14	19	4.75	5	72	4.24

Table 4. Demographic Information on Size of Institution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Large (over 50,000 enrolled students)	2	5.6	11.8	11.8
	Mid-Size	9	25	52.9	64.7
	Small	6	16.7	35.3	100
	Total	17	47.2	100	
Missing	System	19	52.8		
Total		36	100		

In analyzing the data, a key word approach was used to identify the ranked program. Respondents were asked to identify and rank their top three programs that they felt met the need for Career Readiness in that following information was requested for each response: name of the program, the department that administered the program and to briefly describe details of the program.

Table 5 shows the areas as categorized by departmental programming: Student Activities, Career Development, Leadership Development, Civic Engagement, Student Employment, Service Learning, Multicultural, Residence Life, Greek Life, Study Abroad, SGA and Experiential and ranking from respondents indicating top one, two and three programs that they identify meet career readiness objective. Points were assigned to each ranking with 5 points associated with first place, 4 for second and 3 for third. The area that received the largest votes were career development second was leadership development and third was student activities. Forth place was civic engagement. The remaining eight programs identified received a score of fifteen or less.

Table 5. Ranking of Career Readiness Departmental Programs

	1	2	3	Range (3-60)
Student Activities	2	3	4	(34)
Career Development	7	2	1	(46)
Leadership Development t	5	3	1	(40)
Civic Engagement	3	2		(23)
Student Employment	1			(5)
Service Learning	1			(5)
Multicultural			4	(12)
Residence Life	1		1	(8)
Greek Life		1	1	(7)
Study Abroad		1		(4)
SGA		1	1	(7)
Experiential			1	(3)

4. Implementation of the Findings

The proposed Interdisciplinary Freshman Experience program includes Career Development, Leadership Development and Student Activities components as identified as most crucial ones in the study. This study revealed that there is an alignment between student affairs learning outcomes and employer's expectations for career readiness, however the intent was the same but the language was different. The results of this study show a need for common terminology across constituent groups making potential employees more comfortable in using their co-curricular activities as transferable skills during the interview and recruiting process.

Through extensive research between higher education, the Society for Human Resource Managers, and employers both domestic and international are able to show that [49]:

- Employers endorse learning outcomes for college graduates that are developed through a blend of liberal and applied learning.
- Employers believe that colleges can best prepare graduates for long-term career success by helping them develop both a broad range of skills and knowledge and in-depth skills and knowledge in a specific field or major.

Employers endorse several emerging educational practices that two- and four year colleges are implementing to ensure that students graduate with the knowledge and skills needed to succeed after graduation. They are most supportive of practices that demonstrate a) students'

acquisition of both depth of knowledge in their major as well as broad skills, b) students' ability to apply their college learning in real-world settings, and c) their development of ability to conduct research and develop evidence-based analysis. They also see potential in practices that require students to focus on ethical decision- making and require direct experience with methods of science to understand how scientific judgments are made [52].

The Freshman Experience Program is an immersive set of two courses, a 2-hour course followed by a 1-hour course, over 2 semesters using a hands-on curriculum built on a balanced program of studies drawn from a variety of disciplines. The experiential teaching method consists of an introductory concept or skillset, problem definition (challenge), discussion, team-focused problem resolution, and a derived solution or prototype presented to a panel of academic and industry experts as a report, presentation, or similar communication. Introductory concepts of teamwork, critical thinking, etc. are reinforced through the team's work toward a tangible solution to an abstract challenge. An important aspect of the course is for students to "see" their solution to gain immediate feedback.

The first semester consists of a series of projects with increasing challenge and complexity designed to build expertise and gain exposure to a variety of topics, culminating in a proposal for a larger-scale project to be developed in the second semester. Each project reinforces and expands the introductory concept and the core skills of critical thinking, communication, and creativity. To ensure success, the initial target audience will be incoming freshman Honors students and high-achieving students recommended by their respective department chairs.

The instructional implementation is a process spanning a 4- to 6-week timeline and then, repeating. Students are introduced to concepts (awareness, project management, reporting) and technology (including, but not limited to, 3D printing, virtual reality, software design, CAD, and photogrammetry). A variety of teaching strategies and tools will be used to increase comprehension and understanding [34,53,54]. A hands-on approach brings instruction "off the paper," improving academic performance and raising interest [55]. Working in teams, students are given a challenge and are encouraged to find creative solutions by employing the technology and concepts previously introduced. At the end of each learning cycle (Figure 1), teams will be asked to reflect on how the creative process worked and how they can improve in the next project.
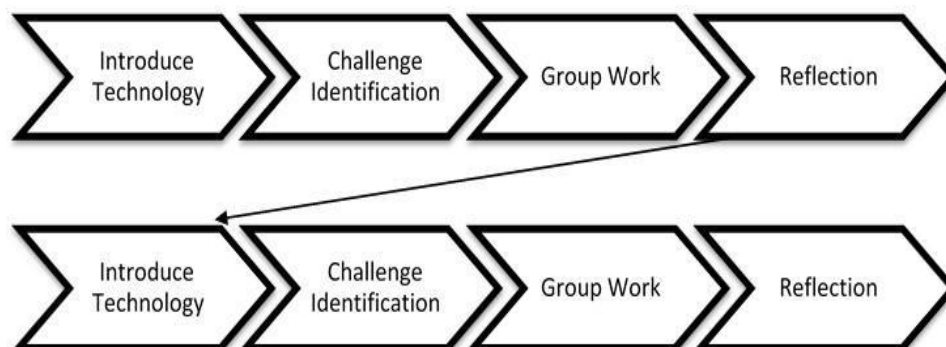
Figure 1. Learning cycles

Learning outcomes extend beyond the primary goals of teamwork, problem evaluation, problem solving, time management, creativity, innovation and interpersonal skills to encompass evaluation of customer requirements, development of business proposals, and creation and delivery of effective presentations. The collaborative course development and use of technology will make the course more enjoyable for freshmen and result in higher levels of student engagement and satisfaction [56,57]. Enrichment activities, such as guest speakers and site visits are incorporated to add relevance and significance to the challenge.

5. Example Modules Incorporated into the Freshman Experience Program

5.1. Ecologic: Teaching Sustainable Environment

As environmental awareness increases, industries and businesses are assessing how their activities affect the environment. Society has become concerned about the issues of natural resource depletion, air quality and environmental degradation.

Complex global challenges require multidisciplinary sustainable solutions; the next generation of students must be prepared to apply sustainability concepts to solve these challenges.

This set of experiential activities teaches the fundamentals of Sustainable Environment by using learning strategies that can help students achieve the wide range of knowledge, skill, values objectives and practical application of rhetorical knowledge by hands-on activities. Students will be introduced to several innovative technologies such as Unmanned Aerial Vehicles (UAVs) and Air Pollution Meters.

A basic premise of education for environmental sustainability is that just as there is a wholeness and interdependence to life in all its forms, so must as there be a unity and wholeness to efforts to understand it and ensure its continuation. This sustainability-themed module engages students in critical thinking, problem solving and decision making in ecological and environmental contexts that are personally relevant to them and regionally related. This approach to learning also involves making opportunities for debriefing and consolidation of ideas and skills through relevant feedback, applying potential solutions to real-life.

The 4-week module includes introduction to the Sustainable Environment, Life Cycle Thinking (LCT) assessment, Air Pollution Measurement activity, UAV (drone) field day and integrated module project. Educators should purposefully engage learners in direct experience and focused reflection to increase knowledge, develop skills, clarify values, and develop student's capacity to contribute to their local communities. This module's project increases regional awareness by focusing on recognizing solving current environmental issues in local area and solving them.

Life Cycle Thinking (LCT) assessment serves as an introductory team-based exercise to stimulate thinking process to define "Sustainability" in regards to environment. Life cycle assessment involves the evaluation of environmental aspects of a product system through all stages of its life cycle. A large number of companies from Apple to Unilever, employ LCT in their sustainability work, often at substantial expense. Life-cycle assessment (LCA) is data intensive; it requires a team of diverse professionals working collaboratively across organizational functions. Each group of 4-5 students is given a product to take apart. Students will quantify total sustainability impacts – like environmental damage – over the entire life of a product following the 6 stages of a life-cycle. This exercise is designed for deeper understanding of sustainability narrative and possible ways of improving product design to lower negative impact on the environment in the long run without compromising the needs of future generations.

Any product design, manufacture and industry contribute to air pollution levels. Students will accurately measure the levels of air pollution using Air Pollution Meters and identify possible impacts of industry waste in the area and its contribution to area's ecological state. By using UAV (drone) students can map polluted area and identify the main sources of pollution such as chemical plants, construction cites, traffic and lack of green space. This field day activity exposes students to innovative technology usage and photogrammetry techniques to map desired area for the final project. Given levels of air pollution and an interactive 3D map, students are asked to generate ideas for a sustainable project that would positively influence environment and well-being of a community and present it in groups.

The use of a drone introduces students to a new technology and learn how new technologies can facilitate tasks. As drones can easily fly the area and provide timely and high-resolution maps and 3D models, drones offer significant efficiency gains compared to traditional methods not only in construction but in various fields.

This module assists students to generate alternative solutions and working within given set of constraints to arrive a most accurate solution.

The three phases of this module include: (1) introduction to a new technology and sustainable development challenge: teams learn about the new technology, the new possibilities and options, but also restrictions, rules, and regulations that have to be observed; (2) observation: each group has a given period to use the drone and air pollution meter to monitor given area; (3) comparative analysis and creativity: students are asked to collaboratively work on a creative and sustainable solution for an environmental challenge without a given set of constraints. Each group has no limitations by finding solutions for their problems, free creation stimulates creativity.

Students will engage in a post-evaluation of the project. They will consider questions related to the projects in the areas of impact of new equipment (technology), construction (engineering), and decision marking (management). Based on their reflections, students will re-assess their ideas and discuss what they might have done differently and why. Furthermore, the use of drones in various ways to facilitate monitoring especially in unclear and inaccessible situation such as environmental disasters will be engaged.

6. Discussion and Recommendations for Future Research

The results of this research reflected that student affairs professionals are attempting to provide career readiness programs which employers maintain are essential for them to invest in graduates of our universities. The inconsistent use of language seems to be a barrier in ensuring the recognition of career ready applications. The Freshman Experience Program should be designed to put students in the environment of real-world problems early in the scholastic career and implemented not only in the higher level education institutions, but also in 2-year colleges and schools.

The main scholarly impact of the proposed course is to provide students with an opportunity to experience interdisciplinary collaboration to solve real world problems and to promote the value of diversity in a collaborative environment. In addition, the Freshman Experience provides a means for faculty members in different disciplines to work together and with cross-disciplinary student teams, forming a catalyst for innovative ideas and new research opportunities.

Generally, college graduates hold degrees and possess technical skills but are lacking in communication and interdisciplinary teamwork skills. Often, graduates enter the workforce with significant deficiencies in interpersonal skills, problem-solving, oral communication, leadership, and written communication skills. The Freshman Experience targets and strengthens the skills that have been long-standing concerns of employers. The university and the region will benefit as graduates are better prepared for modern working environments.

Coursework results in improved experiential education. This experience is a unique opportunity to train a new generation of students. This course is a source for faculty learning and research by providing a team-learning environment, campus-wide collaboration, lab facilities, and educational best practices. As a result, the course is truly multidisciplinary and integrated in content and design. It is the author's aim to continue studying and testing the program, providing reports in the future, to update the progress and results of long-term implementation. Building on university strengths',

The Freshman Experience will attract more high-achieving students to a university. When students of high academic achievement are considering universities, the Freshman Experience can be a determining factor. Although, initiated with Honors College students, a broader implementation will engage students and have a positive effect on retention across the university. Recruiting higher quality students attracts even more high-achieving students, forcing better performance across campus. By emphasizing practical interdisciplinary behavior early in a student's academic career, the Freshman Experience will reinforce the university's reputation in the industry.

The research should be repeated using a larger and more varied sample. Based upon student affairs professionals identified two program areas: SGA and Experiential Learning were not a part of the Likert scale and are appropriately a part of the IAL subscale. This research and instruments may have strong research applications for P-16 initiatives: K-12 grades, especially Middle and High Schools.

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