

Understanding SLO 22- Lifelong Learning

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This paper is an informative overview of the student learning objective SLO 22, lifelong learning, in relation to the California Polytechnic State University, San Luis Obispo Construction Management Department. The student learning objective of lifelong learning is an existing university objective for Cal Poly, however, recently has also become a department specific objective for Construction Management. This senior project explores what lifelong learning means to the Construction Management department. Further, the paper explores how the current outcomes of this objective may improve to more closely embody the department mission. These findings will allow for emphasis on lifelong learning in order to prepare students to be lifelong learners while receiving an education at Cal Poly, as well as continued growth after graduation. The hybrid nature of this senior project includes a project-based portion consisting of the creation of a study guide of SLO 22. The intended purpose of the study guide is to prepare students for the AIC Associate Contractor Exam. The research-based portion of this project includes the creation and distribution of a survey with the intention of determining what lifelong learning is, how the Cal Poly Construction Management Department is currently fulfilling this objective, and how it can be improved.

Key Words: Learning, Education, Advancements, Careers, Development

Introduction

In an everchanging world, the emphasis of lifelong learning is growing in popularity to promote a “more experienced” person, prepared to respond to evolving technologies, practices, and lifestyles. Lifelong learning is a holistic overview of the growth of an individual throughout one’s lifetime - taking experiences and transforming them into learned senses, skills, or knowledge. This form of learning incorporates the critical evaluation of paradigms and social constructs with the ability to adjust perceptions with a more developed sense of self. This form of learning is known as transformative learning and is a sect of lifelong learning emphasizing personal growth. Other sects of lifelong learning correlate directly to learned skills or knowledge to propel oneself in the workforce. The forms of lifelong learning in the construction industry most commonly are identified as

certifications, licenses, training programs, graduate degrees, company led courses, jobsite experience, safety talks, industry conferences, and seminars or webinars.

While students attend Cal Poly, the learning environment is very structured, with a designated teacher and clear objectives for the learning. Outside of this environment, the learning dynamic changes as it requires more self-awareness and discipline. It is the objective of the Construction Management department to best prepare students to engage in this form of learning through incorporating this goal into the culture and learning environment at Cal Poly.

The Construction Management Department provides the circular relationship between the program mission, goals, objectives, outcomes, evaluations, and improvements (see Figure 1). The diagram depicts how the mission, also known as the values of the program become goals. These goals have objectives which are the intended outcomes. The actual results of these objectives are the outcomes which can be measured with evaluations and surveys, which can be used to improve the program to build upon the mission.

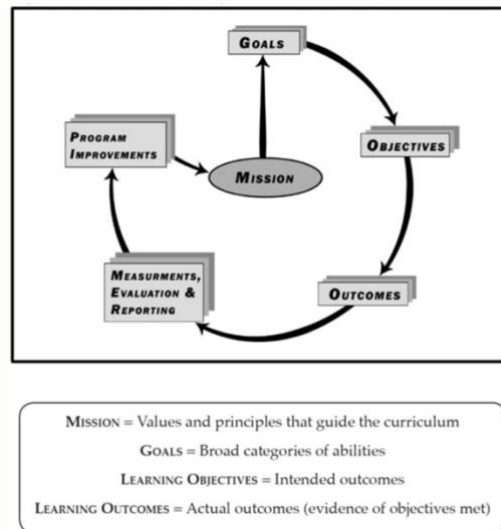


Figure 1: Mission Loop (Cal Poly Construction Management)

Cal Poly has a strong emphasis on the university motto “learn by doing.” This mindset emphasizes the ownership and self-exploration that is a key component to lifelong learning. This motto is embodied through the lab coursework in the Construction Management curriculum that allows students to gain first hand experience building and experimenting with construction materials. Survey results will shed light on a possible correlation of the learn by doing motto and successes of the lifelong learning objective.

Literature Review

The World’s View

In order to understand what lifelong learning means to the Cal Poly Construction Management department, it is essential to understand what lifelong learning means to the world at large. The academic journal “Globalization, Lifelong Learning and the Learning Society” delves into the adaptation of learning throughout one’s life. It is noted that lifelong learning occurs whenever conscious living occurs. The gap between past experiences and current living may provoke a question, for instance, “what is this smell?” Jarvis notes that the answer to these learned experiences are social constructs and are essential to be able to navigate the social world in which we live (Jarvis, 2007).

The Construction Industry’s View

The construction industry, like many others, is revolutionary in terms of technologies, best practices, and safety. This evolution makes the importance of lifelong learning widely valued throughout the industry. The typical forms of learning in the industry consist of certifications, licenses, training programs, graduate degrees, company led courses, jobsite experience, safety tool-box talk, industry conferences, and seminars and webinars. Lifelong learning in the construction industry is a crucial component in career mobility and advancements. The importance of lifelong learning is emphasized in the academic journal “Lifelong Learning, a Symposium on Continuing Learning” which notes that typically, there is a decline in learning starting at the age of 17-25 (Jessup, 1969). However, a conscious effort to continue development and learning practices will reap great results in industry and otherwise.

Lifelong Learning in Education

Chico State University preformed a study in the fall of 2020 to better understand the learning at the university. An emphasis on this report is the contrast on how professors view the learning styles to how the students view their learning styles and environment. This report reveals a stark contrast between how the emphasis on memorizing at the university (see Figure 2) is viewed. This distinction is important in the University’s relationship with preparing students for lifelong learning because a major avenue to develop a lifelong learning mindset is to learn to understand and utilize rather than regurgitate in the form of an exam (Kaminske, 2020). While memorization and understanding are not always mutually exclusive, the high emphasis on memorization perceived by students may hinder the ability to fully develop as a lifelong learning while at the university.

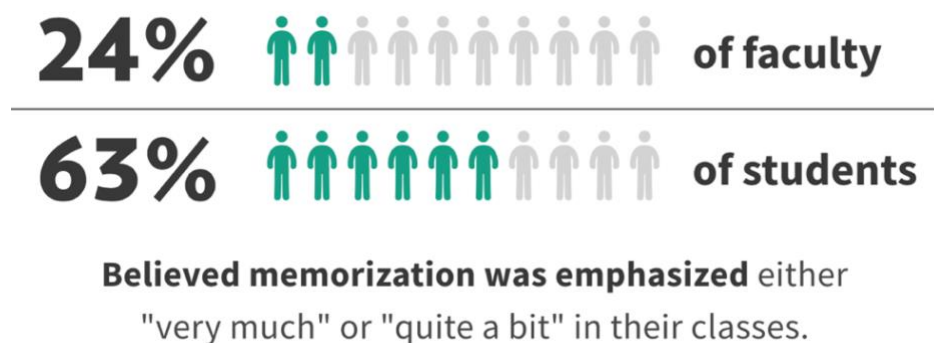


Figure 2: Emphasis on Memorization at Universities (CSU Chico)

To prepare students for lifelong learning, the educational environment needs to adopt the values of self-directed and self-determined learning. “Pedagogical, even andragogical, educational methods are no longer fully sufficient in preparing learners for thriving in the workplace, and a more self-directed and self-determined approach is needed, one in which the learner reflects upon what is learned and how it is learned and in which educators teach learners how to teach themselves” (Blaschke, 2012). Andragogy is a learner-controlled learning experience. The learner determines the objectives and direction of the learning experience. The goals of self-directed learning are to encourage transformative learning, which reevaluates paradigms in order to achieve personal growth, to equip individuals with the skills needed to engage in lifelong learning. Similarly, heutagogy expands on the ideals of andragogy to promote a self-determined learning experience. In the field of academia, heutagogy is preparing students to understand the process in which they learn. This construct is not a linear approach to learning and involves self-exploration, trial and error. The value of lifelong learning in the world could be better emphasized in education through the adoption of self-directed and self-determined learning environments (Hase, 2009).

Similarly, the need for modifications in the current education system is reiterated in the academic journal “Competence Development as Perceived by Degree and Non-degree graduates in Japan: A Longitudinal Study” which places a high value on practical education. The study was performed to evaluate the potential benefit of graduate school. “The results suggested that the graduates perceived their competence to be rapidly growing during the first half of the graduate year, and slowly later. The results also indicated that the graduates' perception of their competence showed a significant variation. The most striking finding of the study was that, on average, the non-degree graduates rated their competence higher than their degree counterparts” (Takase, 2013). The findings of this study embody the Cal Poly motto “learn by doing” which emphasizes a hands on learning environment with applicable curriculum.

Purpose

A survey of five concise questions regarding lifelong learning in the construction industry and at Cal Poly was sent to students, alumni, and industry professionals. The survey serves the purpose of concretizing the opinion of what lifelong learning consists of to the Cal Poly Construction Management department and how to best promote this student learning outcome in the program. The survey fulfills the measurement portion of the mission loop followed by the Cal Poly Construction Management Department.

Methodology

Research

The findings presented in this paper originate from research, presented in the form of a literature review, and new knowledge gained through the creation, distribution, and interpretation of a survey. The survey questions were formulated based on the literature review findings which revealed the view of lifelong learning from the world at large and in other industries and universities. Responses from 81 people, including current students and alumni, comprise the survey results. The questions yield a numerical representation of the value of lifelong learning in construction, determine what is considered lifelong learning, and determine how well Cal Poly prepares students to engage in lifelong learning after graduation. The survey questions support the desired outcome of understanding what

the Construction Management Department does well in supporting graduates in their quest for lifelong learning and how this preparation could improve.

Similarly, a study guide of the student learning objective, study guide questions, and a one-page summary have been created as a deliverable to the project-based portion of this senior project. The study guide is the primary deliverable which holds the importance of educating students on the aspects of lifelong learning. This study guide is a resource for students preparing for the AIC Associate Contractor Exam and maintains the American Schools of Construction Proceedings Style Formatting (see Figure 3). The following project-based deliverable is comprised of study guide questions prepared by a current CM 461 student, Kenneth Han, in collaboration with Madeleine Zetterquist to serve as a resource for students preparing for the AIC exam. Lastly, the one-page summary of the objective is to be given to the department. This summary includes the important findings from the research and survey.

Understanding Lifelong Learning (SLO 22)

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This paper serves as an overview of the student learning objective lifelong learning. The paper has the intended purpose to prepare the reader for the lifelong learning component of the AIC Associate Constructor Exam. The key components of this paper include exploring the core concepts of lifelong learning, providing an overview of the common avenues to achieve lifelong learning in the construction industry, and navigating techniques to overcome common obstacles presented in lifelong learning. Understanding lifelong learning is an important aspect to remain an involved citizen and industry member and allows construction professionals to continue to make valuable contributions to infrastructure throughout their careers. Similarly, a clear understanding of lifelong learning allows the Cal Poly Construction Management Department to best cater the curriculum to prepare students and graduates to engage in lifelong learning after graduation.

Key Words: Learning, Education, Advancements, Careers, Development

Introduction

Lifelong learning in the construction industry, and the world at large, has been increasing in prevalence as technologies and innovations in the world continue to provide an everchanging environment both professionally and personally. Lifelong learning focuses on continuing education, either formally or informally throughout one's life to create a "more experienced" person. Lifelong learning is present whenever conscious living takes place, allowing for the development of knowledge, senses, or skills.

Core Concepts of Lifelong Learning Implications of Lifelong Learning

What are its goals?

Figure 3: Page 1 of SLO 22 Study Guide (Zetterquist 2020)

Results and Analysis

The importance of lifelong learning in the field of construction was rated on a scale of 1-5, with one being unimportant and 5 being essential. The average of the responses yields a 4.79, revealing the critical nature of personal growth in the industry of construction. The results align with the global emphasis on this pillar and affirm the need to best establish this student learning outcome in the Construction Management Department.

The following question is intended to identify what is considered lifelong learning (see Figure 4). The responses point overwhelmingly to jobsite experience being the primary form of lifelong learning in the industry. The “classroom style” learning such as graduate degrees, seminars, and webinars are perceived by the fewest amount of students and graduates to be integral components of lifelong learning. This data may correlate to the more passive experience a classroom presents. The jobsite experience emphasis aligns with Cal Poly’s “learn by doing” motto” which emphasizes learning through experience. This finding also affirms the pillar of active learning in lifelong learning.

Which of these do you consider lifelong learning: (select all the apply)

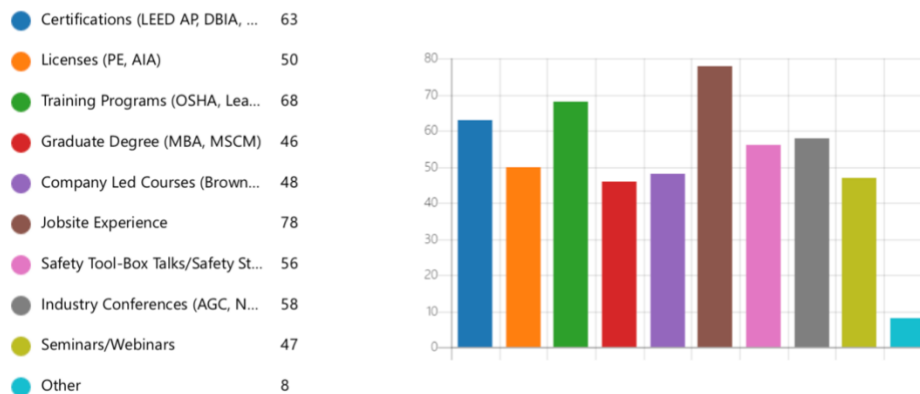


Figure 4: What is Lifelong Learning (Survey Results 2020)

To assess the current outcome of the learning objective, the students and graduates rated how well Cal Poly currently prepares students to engage in lifelong learning. The scores are 1-5 with 1 being poor and 5 being best. The average number for this response is a 4.02. While this data point is promising that the program outcomes are positive, there is also room for improvement. The following question is intended to better understand how this score can continue to improve through department evolution.

The following survey question poses the question “How could the Cal Poly CM Department better prepare students for lifelong learning prior to graduation and support alums following.” While the answers to this question vary, two responses were significantly represented: increase industry involvement and create a mentorship program. Currently, industry members are involved in the department through, recruitment, internships, club appearances, sponsorships, and giving presentations in certain courses. One way industry members could be more involved is through a mentorship program. The need for a mentorship program in the department has been emphasized in “Student Mentorship: An Essential Practice” a senior project by Jonathan Ott in the spring of 2020.

Jonathan's proposal consists of a peer mentorship program, where upperclassmen have the opportunity to mentor younger classmates. This concept has been widely supported as beneficial in the industry and best prepares students to engage in positive work relationships after graduation (Ott, 2020). This concept could be expanded to industry members with the possibility of the mentorship continuing after graduation as the students become industry members themselves.

Conclusion and Further Research

Lifelong learning as a construction management student and professional is the holistic growth of a person. This growth involves conscious living to continue to advance personally and intellectually. The most popular and effective engagement of lifelong learning after graduation is jobsite experience which correlates with the Cal Poly motto "learn by doing" and the emphasis of active learning to be a successful lifelong learner. Other forms of lifelong learning include certifications, licenses, training programs, graduate degrees, company led courses, safety talks, industry conferences, and seminars or webinars. Currently, Cal Poly's Construction Management Department is successfully preparing students to engage in lifelong learning. Despite this success, the department could further the success of this objective through increasing industry involvement and implementing a mentorship program within the department.

Further research and actions for understanding lifelong learning consist of researching what forms of industry involvement can be improved and take taking the measures to instill these aspects in the program. Similarly, courses may be evaluated and adapted to emphasize the principles of learning to understand and utilize, independent learning, and exploration outside of the classroom setting. Lastly, the implementation of a mentorship program in the Construction Management Department would align the department programs with the desired outcomes.

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Appendix A - Survey Questions

On a scale of 1-5 how essential is lifelong learning beyond graduation in the field of construction:

1-5

Which of these do you consider lifelong learning: (select all the apply)

Continuing education courses

Certifications

Licenses

Training

Graduate degree

Company lead courses

Onsite experience

Weekly tool box talks

Industry Conferences

Seminars

University courses

Other: please add

On a scale of 1-5, with 1 being poor and 5 being best, how well do you think Cal Poly prepares students to engage in lifelong learning following graduation?

1-5

How could Cal Poly CM better prepare students for lifelong learning prior to graduation?

Open Ended

How could the Cal Poly CM department best support graduates after college in their quest for lifelong learning?

Open Ended