

An Explorative Study to build the Work Readiness for Engineering Students

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Abstract

Nowadays, the preparing for work readiness before graduation is confronting issues for an enormous bit of the universities. Mainly, graduates are not skilled and competence in the workplace. To resolve these difficulties towards outcome-based education (OBE), it is focused on the work-based learning (WBL) and built the linkage between students, instructors and industries. Actually, if the instructors do not consider the readiness of the work related respective courses, it will not be able to find a readiness way for students towards continual quality improvement (CQI). In this research, it is proposed for insights about the essential measures to set up the work readiness capacities for understudies. The primary research challenge is examined the possibilities of the linkage among academic and industry in Myanmar. The results of this case study are inspected about WBL steps that assist understudies with being better arranged to settle on better decisions for their internships. To survey the proposed commitments, this discussion is illustrated with models from multidisciplinary studies, which explore the understudies' genuine issues. The effectiveness of this study can provide a bridge between academic and industry to train competence skills with a taste of work in the classroom to improve student's work readiness.

Keywords

Work Readiness, Outcome-based Education (OBE), Continual Quality Improvement (CQI), Work-based Learning (WBL), Case Study

1. Introduction

The maintainability of engineering education, which is related to the eventual fate of country and nationality, is totally dependent on the instructors and understudies in spite of the fact that it is identified with the variables of modern industry linkage. To actualize this maintainability, not just instructing and learning forms are expected to have quality affirmation including work preparation aptitudes yet in addition the capacity of crisp alumni to apply their insight to genuine modern issues at present are communicated.

The former governments of Myanmar initiated technological and computer universities in the regional development zones from 1966 to 2011 (Myat 2012) however engineering education has been specifically and significantly weakened starting from 1988. Although skillful field engineers are essential for rapid development of the nation, the engineering in Myanmar has mostly lagged some other professions and income and job opportunities in engineering are no longer attractive enough. The challenge in the workplace was that graduates are not skilled in the workplace. To solve this challenge, (Mashigo 2014) examined the correlation between the readiness in workplace, emotional intelligence and psychological capital of graduates.

Since the engineering is a practicing profession, it is essential to become a practicing engineer. The practical work and the training through industrial interaction are vital as well as the theoretical subjects. Generally, a common goal of engineering education was to prepare students to practice engineering education and realize the types of engineers' facing problems, the concepts, procedures and tools (Sheppard et al. 2006). (Rowe and Zegwaard 2017) considered a way to increase the working capacity of graduates. It suggested that it may be beneficial to teach work-based techniques in the curriculum where students were also taught a way of learning that can support the competency of the graduates in work. In order to be ready for the workplace, the industry had acquired the personal skills they need to meet the required qualifications for the graduates (Bridgstock 2009). Moreover, the researcher

(Makki et al. 2016) determined how the Malaysian University of engineering graduates' career exploration and job readiness qualifications based on mean score of the students.

Postsecondary universities play an important role in effectively preparing jobseekers for accomplishment in the work environment. However, in Myanmar, industries report that most of the universities don't concentrate enough on training learners to be work ready. The going with issues makes it difficult for some new alumni to be readied occupations in present labor force:

- Employers by and large feel that progressing graduated class require extra getting ready to perform well grinding away.
- Employers find that progressing graduated class need greater plan, similar to specific aptitudes, essential capacities and work preparation aptitudes.
- To be advanced into administrative roles, representatives need solid work preparation abilities.
- Recent graduates by and large learn theory in universities and need dynamically utilitarian application and experience.
- The nature of work is turning out to be more help arranged as representatives are managing an assortment of individuals and requirements.

Because of these, it needs to concentrate on work readiness skills in universities. Therefore, the fundamental point of this investigation is to determine the importance, effectiveness and impact of the linkage between university-industry on engineering graduates' employment in Myanmar.

The objectives are to propose the strategies of students more ready to go into workplaces before internship, connect the classroom with more local industry partners, focus on real problems in the environment in which the learners will work and examine useful additional activities in classrooms and to build work readiness skills in existing classes by teaching in a learner-centered manner. Based on the authors' knowledge with MekongSkills2Work training course and interview outcomes, the potential methodologies and policies to be implemented, and solutions to achieve sustainable growth engineering and technology are also addressed.

2. Research Strategy

This research study is based on observation and surveys that address a problem and generate to improvements.

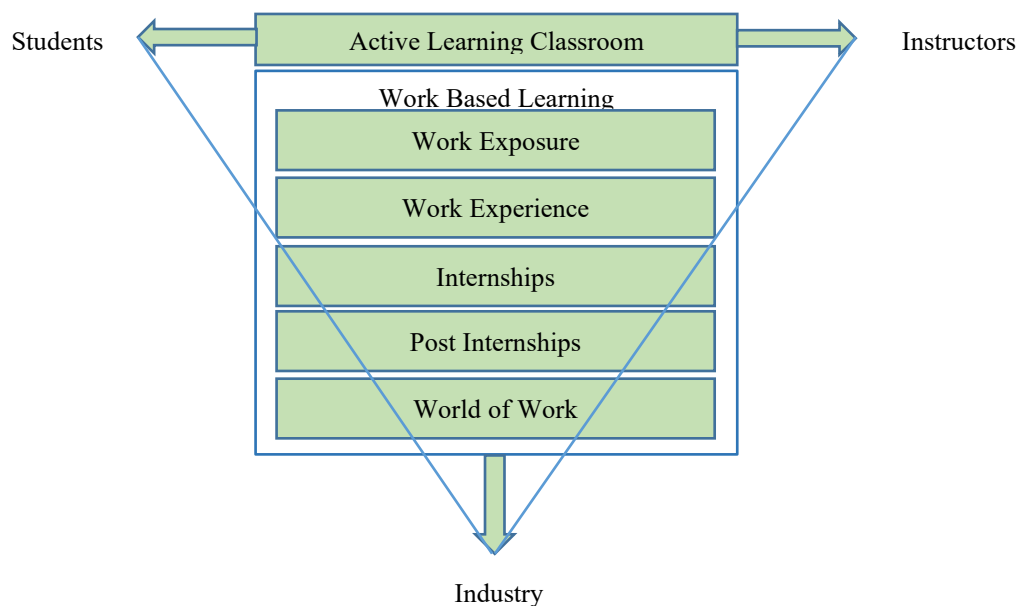


Figure 1. Preparation for work readiness

There are two principle stages for concentrating on both procedures. They are initially active learning classroom and besides work based learning before the world of work as appeared in Figure 1. Participants of this study who were chosen as convenient sample were separated into three main groups: instructors, students and industry. Particularly, the qualitative research strategy is adopted in this investigation and a selection of total of nearly hundred engineering alumni.

3. Active Learning Classroom

In accomplishing educational objectives and creating a supportive learning environment, classroom system for active learning plays a crucial role before students are going work. Engineering students in Myanmar are generally teaching hours from 8 AM to 4 PM. Instructors must care not to squander their important occasions in universities. Therefore, active learning classroom refers to the strategies that the teacher manage to control the classroom effectively, stimulate students' inspiration on their learning and bolster the students centered learning needs. By utilizing effective active learning classroom strategies and techniques, teachers can create the ways how to get students' enthusiasm and academic achievement.

In creating a supportive learning environment, stimulating students' motivation is a key component of learning process. The two types of inspiration for learning process are intrinsic and extrinsic. Intrinsic motivation happens when the understudy already has an enthusiasm for learning the subject and is inspired inside. Nonetheless, extrinsic motivation occurs when different components, such as a prize or recognition driving them to participate in class. It is the instructor's responsibility to engage students in learning by tapping into intrinsic and extrinsic inspiration.

To stimulate students' motivation, it is vital to concentrate on the accompanying strategies:

- Foster a positive learning environment,
- Build rapport with students,
- Prepare engaging lessons,
- Give understudies options, and
- Start a reward and recognition program.

4. Work Based Learning (WBL)

An effective engineering education system is indispensable to ensure that engineers have the essential abilities to incorporate advancement and innovation into generation. However, the national level engineering companies need more engineering graduates in Myanmar; they are confronting the lack of students' work readiness skills in work environment. In recent years, the educational system produces quantities of graduates every year who are not being absorbed into the labor market. Since the skills gap among fresh graduates are occurred, the engineering recruitments do not meet the expectations. The education of Myanmar has been changed the procedures for preparing students to practice engineering in genuine work. Universities based on outcome based education (OBE) need to prepare the understudies according to the work based learning to satisfy the truth abilities in genuine work as following sub-sections.

4.1 Work Readiness Skills

Work readiness skills are the abilities necessary to prevail at work, regardless of the specialized position. Basic capacities of positive practices empower people to manage the requests and difficulties of regular daily existence with a work center.

Sometimes work readiness skills are educated in a standalone course. That approach is a luxury that many engineering institutions can't afford. For this reason, it is centered on how instructors can construct these critical skills in their learners simply by changing the way they structure their classes. Work preparation aptitudes, for example, adaptability, collaboration, diligence, problem solving, time management and communication skills can be tended to through student-focused instructional strategies (MS2W Sourcebook). These abilities comprise of knowledge, specific sub-aptitudes, qualities, attitudes, and behaviors that are important to succeed in the work environment.

Teachers show proof of having the ability to cultivate work readiness skills in their instructional practices. In classroom, the learners build critical work readiness skills through group work and project-oriented learning activities. Diligence, teamwork, adaptability, problem solving, communication, and time management can be

developed to get these skills in class, no matter what the topic, when using group work and project-based activities. For example, when assigning a team project, how well did the team members collaborate and contribute their individual pieces to the greater activity? When assigning presentations, how well did the learner communicate their message? Work readiness skills can be evaluated! The knowledge, skills and behaviors for each of these six work readiness skills for nearly 100 engineering students are surveyed in the accompanying Figure 2.

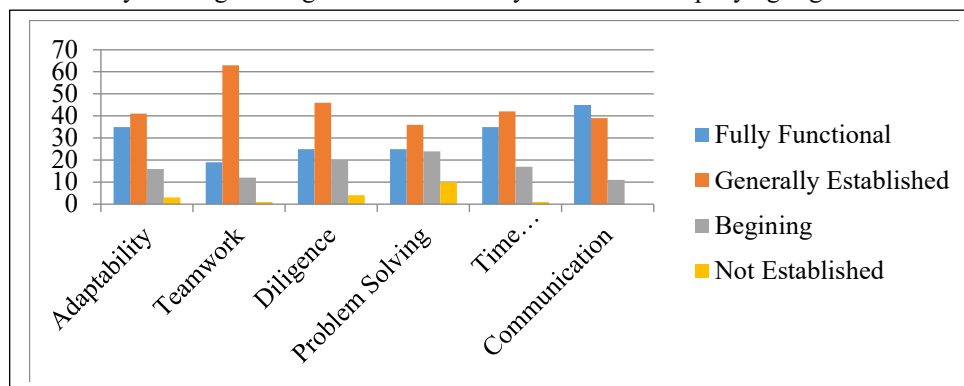


Figure 2. A survey on whether work readiness was practiced in class

The learner-centered assessment toolkit will assist the instructors with improving their assessment strategies. Therefore, it is practiced under studies in their classroom for getting work readiness skills such as having the classroom activities foster adaptability, collaboration, diligence, problem solving, communication, and time management, at least 3 of the work readiness skills are developed in any given classroom activity, the instructors demonstrate good time management in the classroom (i.e. starting and stopping on time, giving adequate time to activities, holding students to deadlines) and the classroom activities expose students to workplace issues, challenges, and realities.

4.2 Work Exposure and Work Experience

It is observant through short working environment visits for final year engineering students before internship in succeeding stage. Through short work exposure activities, under studies verify regarding their interested real work. The purposes of work exposure and experience are as per the following:

- To verify regarding work,
- To get work expertise for curriculum vitage,
- To build a relationship with employers,
- To be higher ready for internships and
- To pick up internship placements.

By doing work exposure and work expertise, under studies build higher career decisions and learn to search out their own internships. From this, instructors connect the classroom with industry and visit a lot of workplaces themselves. Moreover, institution connects with a lot of native industry partners.

After work exposure, under studies can valueate themselves. Additionally, instructors can likewise survey learners through actual performance-based tasks in work exposure and used rubrics. From the work exposure, under studies can get valuable work experience during a real workplace like touching and doing, making decisions about career choices and internship placements for one or two days and putting on their CV to get better internship placements for five days. The main purpose is that the students examine the work of selecting with hobby in real work for supporting the internship and real work.

Moreover, the simplest answers for question 'How did work exposure prepare the students for their internship they will be able to do later?' are as follows:

- Working hours (time management skills),
- To be nice at client relationship (communication skills),
- Follow the hobby, not cash and
- To be skillful at one subject as skilled (Problem solving).

This work exposure conjointly moves towards the main concepts from appropriate facts rather than several facts from few concepts for respective filed as shown in Figure 3.

In addition, the main point is that the academic staffs are also found to be lack of industrial exposure. The academic staffs like students ought to even have adequate industrial exposure. Moreover, faculty development for educational staffs, the academic staffs is inspired to participate in local/Foreign training/workshop and conference program. Therefore, the academic staffs of engineering universities have future cooperative with industry for industrial exposure and experience in training/workshop and conference program.

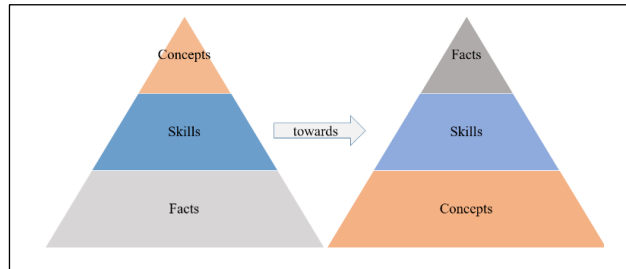


Figure 3. Towards main concepts based on few facts

4.3 Internships and Post Internships

After work exposure, understudies are prepared for internship. Here, an internship is a time of work experience offered by an association for a constrained timeframe to the workplace, frequently inside a particular industry, which identifies with their field of study. In Myanmar, internships can be as short as two months or as long as three or four months in local or foreign company and was launched around 2017. They can be paid or deliberate; notwithstanding, before you start an internship it's essential to know your privileges with regards to getting paid.

The internship program in Myanmar furnishes understudies with proficient work experience coached by specialists in industry. All through an internship understudies is built up an assortment of delicate abilities, including relational abilities, personal effectiveness, presentation skills and creative problem solving.

Industries are typically undertaken by students looking to gain competence than qualified in a particular field to be industry readiness. Also, an internship can be used to make a specialist framework that can assist with letters of suggestion or lead to future business openings. The industries experts can bring esteem included information and hands-on experience to the universities. The coordinated effort with university should be lined up with the methodology of organization's innovative work.

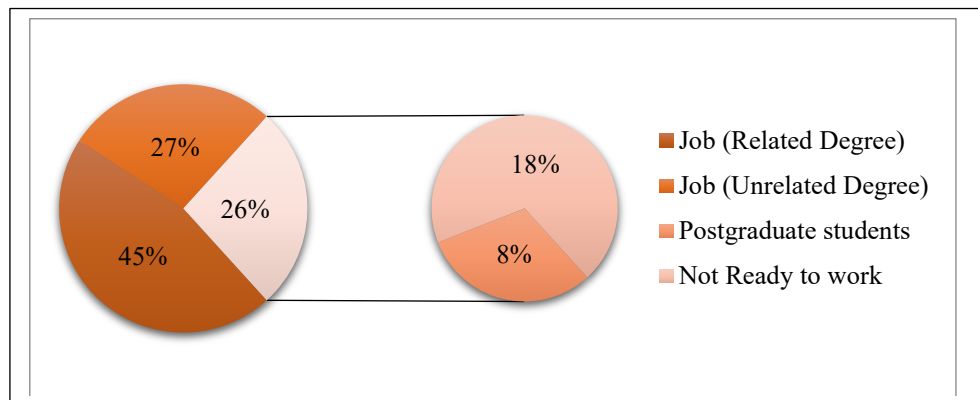


Figure 4. Survey results on post internships for job readiness competencies

Results from a recent survey conducted by engineering graduates advantage proves that post internships create job opportunities for graduates as shown in Figure 4. According to the roughly survey around 100 engineering post internships from 2018 to 2019 academic years, it is indicated that 45% post internships are presently utilized with

their job association related directly or partially intern experiences to build up the abilities to work. Unfortunately, 26% of roughly survey results are not ready to work despite having great experiences of internship.

In classroom, students must be collaborated to the teachers and industry to lessen the jobless percentage. Because classroom is very important so teachers and students must agree to teach and learn hard including soft and hard skills and work readiness skills. From work exposure and experiences, students easily discover their passion related works. In this case, industry must help for work exposure before internship. There is no possibility of industry readiness as the industry has provided only fish and has not yet been introduced. Therefore, teachers, students and industry are like a triangle. Of course, there is a gap at the somewhere of triangle, so industry readiness is not yet available. All have to work together.

5. Conclusions and Future Work

It is concluded that this case study research is not only proposed the effectiveness of the linkage between academic and industry but also improved the qualifications and competencies of students based on WBL. In addition, instructors can get good ideas about how to implement to train students and what tools to use to progress based on work readiness skills. In upgrading career readiness and academic accomplishment for the understudies, it is also very important to utilize effective classroom management techniques before work exposure. Nevertheless, it is required the way that how to diminish the level of not ready of employment for coming next years will be thought of and further study on benchmarking the development of respective batches to scale back the jobless quantities consistent with the work based learning steps.

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Biography

Dr. Moe Moe Myint, is working as the associate professor at Technological University (Mandalay), Myanmar, having research and teaching experiences of more than ten years. She received Ph.D degree from Yangon Technological University (YTU) in 2015. She has published more than 10 publications in international/national journals and conference proceedings. She received paper award for her research contributions at Technological University (Kyaukse) in 2016 and congratulations certificate for Adult Literacy Program Contributions in 2019. She has delivered some invited talks in international conferences and Faculty development programme. She is serving as a reviewer and member at international advisory/technical program committees in conferences. Her research interests include image processing, embedded system, IoT and OBE.