

# Redefining the Evaluation of Internship Programme for Enhancing the Quality of Course Outcome

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## ABSTRACT

In this global era, innovation in engineering may hold the key to the economic growth and prosperity of the country growth. It is highly imperative to bridge the gap between the industry and academia through well-structured internship programmes. Internship has been viewed as an effective approach to equip the students with cognitive knowledge and experience required for the employability on the day of graduation. Effectiveness of internship will facilitate in achieving the programme outcomes to meet the requirement of global need. Internship identifies beneficial effects on its three main stakeholders: students, employers, and higher education institutions. Although internship possess more opportunity in improving the industry academia relationship, but there exist lack of enthusiasm by some academics and it is placed as a course in the curriculum with minimum weightage. In this paper, pedagogically underpinned conceptual framework is described to increase the effectiveness of internship through well-structured rubric evaluation via online tool and fine tune the students experiential learning to ascertain better achievement of course outcomes.

**Keywords:** Internship, Evaluation, Curriculum Framework, Rubrics.

## INTRODUCTION

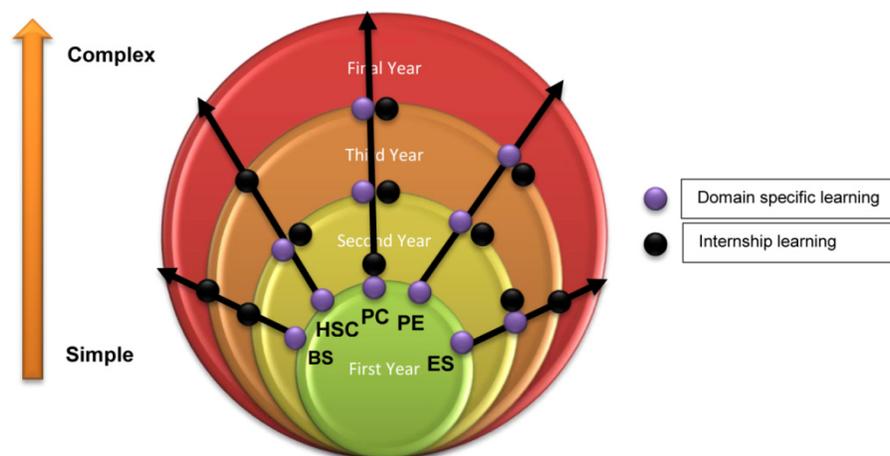
In the globalized world, it is important to develop engineering students who are employable from the day of graduation. At present, the employers expect well defined cognitive skills, with a proper blend of life and soft skills viz., team work, communication, ethical values, self- initiative and responsibility (oneness) from the students. Hence it is highly imperative to fine tune our engineering programme which encompass all aspects of graduate attributes in the curriculum. Within the limited time frame in the engineering courses it is quite difficult to instruct everything in the classroom, hence different approaches need to be deployed. Through the experiential education also known as Internship as we know it today can encompasses an array of potential experiences that will be obtained by the students before graduation. Internships are defined as “a form of on-the-job training in which people gain supervised experience and practical knowledge that is relevant to a specific field”.(Patton & Dial, 1988). Internship identifies beneficial effects on its three main stakeholders: students, employers, and higher education institutions (Clemente et.al, 2015). Major benefits of engaging in an internship experience while in college have been cited in various research studies (Linn, Ferguson & Egart, 2004; Maletta, Anderson & Angelini, 1999; Pelton, Johnson & Flournoy, 2004; Westerberg & Wickersham, 2011). An internship provides benefits not only to the

student but also to the academic institution and industry (Scholz, Steiner & Hansmann, 2004). For the students, internship will provide enough experience in the student's chosen career field; the opportunity to apply skills and knowledge from the classroom; engaging in collaboration with colleagues and work in teams; networking opportunities; developing technical skills; gaining confidence; potential enhancement of job opportunities post-graduation; gaining insight into ethical guidelines in the workplace; opportunities to apply skills outside the college environment; understanding of real life expectations; and reality-testing careers. Thus the internship will provide *knowing how, knowing whom, and knowing why through experiential learning* (Arthur et.al, 1995) and it is recognized as valuable tool in learning and development. *Knowing why* reflects the ethical values, interests, motivations, life long learning and work-life balance issues that are descriptive of the career choices one makes and it eventually help students to decide the specialization need to be taken in the further course of education. *Knowing how* includes the skills and expertise one possesses in the service of career interests and help students to relate what one studied during the graduation. As principle of learning states, learning is enhanced through socially supported interactions, and *knowing whom* concerns the network developed regarding personal relationships, in and outside of the internship period. Thus students are made responsible to hone the necessary skill for their placement, and market them accordingly to the expectation of the industry. A well-developed internship can aid universities/institutions in providing academic challenges, active and collaborative learning, increased visibility, supportive learning environment, developing a partnership between industry and academia and an enriching educational experience for students. Although internship possess more opportunity in improving the industry academia relationship, but there exist lack of enthusiasm by some academics and it is placed as a course in the curriculum with minimum weightage. In general, many students does not perform well due to lack of awareness about the incurred benefits and also due to a lack of systematic evaluation or review process. There is no system to monitor the veracity of organization where students undergo internship and it is the root cause for dodging the system for credit purpose. In this paper, pedagogically underpinned conceptual framework is described to increase the effectiveness of internship through well-structured rubric evaluation via online tool and fine tune the students experiential learning to ascertain better achievement of course outcomes.

## CONCEPTUAL FRAMEWORK FOR INTERNSHIP

At present only in few branches of engineering, internship was made as mandatory to meet the graduation requirement. It need to be noted that well-structured internship plays an important role in bridging the gap between the system of engineering and the practice of engineers, but the existing disconnect is accelerating due to rapid advancement in the technical profession. Based on the existing curriculum, it is observed that there exists internship under employment enhancement courses during the vacation period in the under graduate and graduate engineering programmes. The internship is scheduled for 30 to 45 days period with one to two credit weightage. The surge in the number of engineering institutions and students, made it difficult and highly competitive to find internship programme by the students. The academic coordinator through affiliation in professional bodies would arrange internship programme to the students, but in majority by word-of-mouth from students who have completed satisfying internship experiences can be expected to play a significant role in the choices of other students to pursue an internship. In the choice based credit system, the curriculum is grouped into courses of (a) Humanities and Social Science; (b) Basic Science; (c)

Engineering Science; (d) Professional Core; (e) Professional Elective and (f) Employability Enhancement. Thus, The curriculum over a period of time, moves from general to specific, simple to complex, from broad to specific (Bruner's 1960). The ability of a learner to use knowledge and skills within one context to navigate or solve problems within another similar or, in some cases, dissimilar context. Learning should not take us somewhere, it should allow us later to go further more easily (Bruner's 1960). Layered above the notion of transfer is an individual's self-efficacy or belief about his or her ability to produce specific levels of performance that come with experience, practice and expanded intellectual ability. Figure 1: shows the conceptual model which integrates the different group of courses in the curriculum. It is proper blend of constructivism and connectivism way of learning. It is an active and intentional process where learners develop new knowledge by building on current and prior knowledge. This implies that prior and current learning can be explicitly linked when appropriate, and this intentional linking is a potential method for improving learning.



**Fig. 1:** Conceptual Framework of Internship

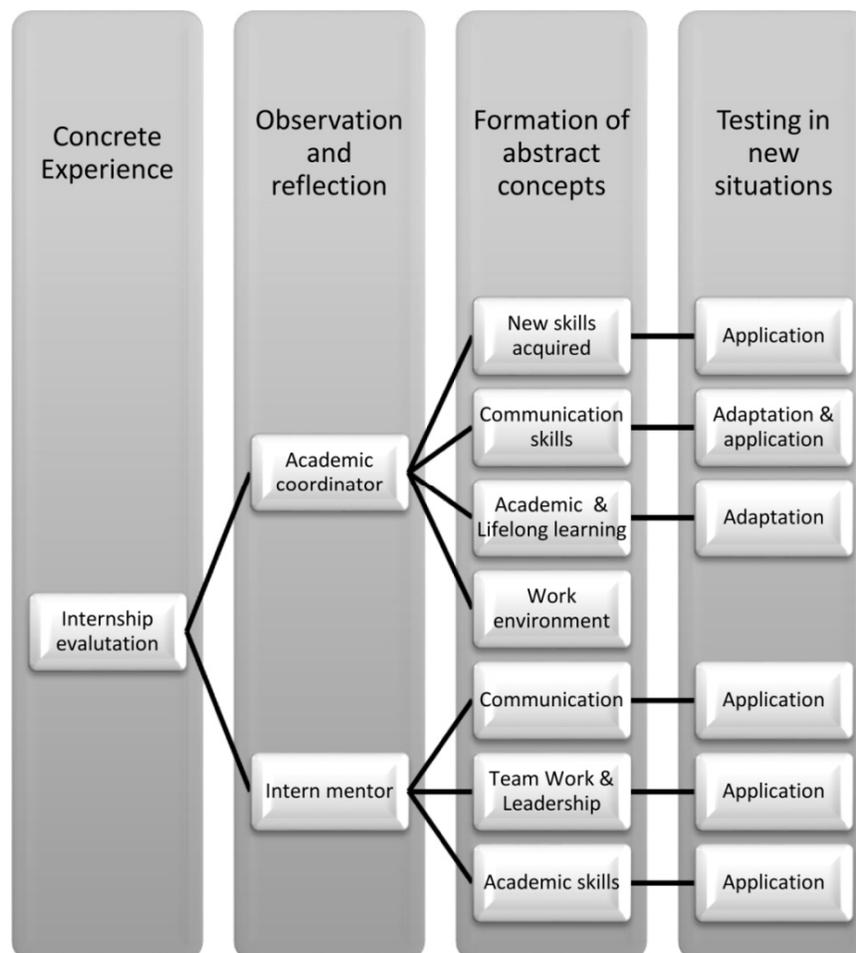
The Full paper has to be submitted electronically by registering to WOSA 2016 website, [www.nba-wosa.in](http://www.nba-wosa.in). It should be submitted by 15<sup>th</sup> January 2016.

## EVALUATION OF INTERNSHIP

At present there exists a well-structured system to undergo internship for the student through their academic coordinator, but the embedding reflection of course outcomes needs further fine tuning for the better evaluation, course auditing and academic accountability. It is discovered there exists a lack of formal connectivity and student reflection from one academic year to the next due to non-structured evaluation of experiential learning. It is concluded that an opportunity existed to map outcomes from one year to the next, link these outcomes through designated milestones and foster student reflection on learning and outcomes attainment at each of these milestones. This resulted in the development of a perspective that student reflection during their internship experience should be outcomes-based whereby students consider the outcomes required of them during their internship while reflecting on the experience itself. Reflection is the process through which students step back from their experience and consciously learn from that experience (Bailey, Hughes, Moore, 2004). In evaluating the effectiveness of internship, following questions must be answered.

1. What is the purpose that organization activity seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can we determine whether these purposes are being attained?

Evaluation of internship programme should verify the attainment of graduate attributes. In accordance to the international accreditation Washington State Accord the engineering programme should encompass the listed graduate attributes in their programme outcome. The graduate attributes as per National Board of Accreditation, are (a) Engineering knowledge, (b) Problem analysis, (c) Design/development of solutions, (d) Conduct investigations of complex problems, (e) Modern tool usage, (f) The engineer and society, (g) Environment and sustainability, (h) Ethics, (i) Individual and team work, (j) Communication, (k) Project management and finance and (l) Life-long learning. The graduate attributes are ensured to integrate and measure through the well-structured course outcomes. There are certain attributes which are imbibed to the students during their experiential learning. Table 1 list the internship experience and graduate attribute correlation with expected course outcome. Figure 2 shows evaluation of internship by Academic and Industry intern mentor.



**Fig. 2:** Evaluation of Internship – Academic and Industry Intern Mentor

**Table 1:** Correlation of Internship Experience and Graduate Attributes

<i>Internship Experience</i>	<i>Correlating Graduate Attributes</i>	<i>Expected Items (To be included in evaluation through rubrics)</i>
New Skills	Modern tool usage; Communication; Individual and team work; Engineer and society; Life-long learning	<ol style="list-style-type: none"> <li>1. Development of new skills and knowledge as a result of the internship.</li> <li>2. Improved experience in networking skills.</li> <li>3. Career ambition and personal interests are more defined.</li> <li>4. My internship work was valuable.</li> <li>5. Clarity in career goals.</li> </ol>
Communication Skills	Communication; Individual and team work;	<ol style="list-style-type: none"> <li>1. Improved oral communication skills.</li> <li>2. Improved written communication skills.</li> <li>3. Improved leadership/teamwork skills.</li> </ol>
Academic challenges	Engineering knowledge; Problem analysis; Design/development of solutions; Conduct investigations of complex problems; Modern tool usage	<ol style="list-style-type: none"> <li>1. I really did something worthwhile and applied what I learned in my internship.</li> <li>2. Projects were beneficial to goal of enhancing overall engineering knowledge.</li> <li>3. Right amount of one-on-one time with my manager to review activity.</li> <li>4. Introduced to challenging assignments and responsibilities.</li> <li>5. I feel that my internship experience gave me a realistic preview of my field.</li> </ol>
Positive Work Environment	Communication; Individual and team work; Engineer and society; Environment and sustainability	<ol style="list-style-type: none"> <li>1. The consequence of the project implemented to the society and environment.</li> <li>2. Introduced to projects with inclusive approach. <i>(Ascertained through officer in charge of internship)</i></li> <li>3. Interrelationship with co-workers during the internship.</li> <li>4. Ability to shoulder the responsibility, responsiveness, punctuality. <i>(Obtained from students – for further consideration of organization for internship)</i></li> <li>5. Received respect from co-workers while interning.</li> <li>6. Treated on the same professional level as the other employees.</li> <li>7. Felt more comfortable working with different types of people.</li> </ol>
Improved Job Prospects	Communication; Individual and team work; Project Management and Finance	<ol style="list-style-type: none"> <li>1. Students who have done internships are more likely to get job offers.</li> <li>2. Feel internships are an effective strategy for gaining employment.</li> <li>3. Attitude about securing job upon graduation.</li> <li>4. Students who have done internships are more likely to have higher starting salary.</li> </ol>
Internship experience		<p><i>(Obtained from students – for further consideration of organization for internship)</i></p> <ol style="list-style-type: none"> <li>1. Done something worthwhile in my internship.</li> <li>2. Overall, I would rate my internship experience excellent.</li> <li>3. I was satisfied with the work assignments I had during my internship.</li> <li>4. My internship was very interesting.</li> <li>5. My internship work was satisfying.</li> <li>6. Projects were beneficial to goal of enhancing overall marketing knowledge.</li> <li>7. Based on responsibilities I would recommend employer to other students.</li> <li>8. Right amount of one-on-one time with my manager to review activity.</li> <li>9. Assigned internship work responsibilities were well defined.</li> <li>10. The work I did was challenging and stimulating.</li> <li>11. Learned more from my internship than from guest speakers in class.</li> </ol>

## CONCLUSIONS

Internship programme have multiplying beneficial effects on students in the area of enhanced employability. It offers a key role in knowledge acquisition for students and a chance to “try out” their chosen field. Higher education institutions and governments would be wise to promote internship programs and enough efforts need to be deployed for publicizing the recognized benefits to the students, faculty and industry. The efficacy of internship would be ascertained only if the evaluation is structured towards programme outcomes. Well-structured rubrics need to be circulated to the industry mentor and students to find the effectiveness of work environment. Evaluation from the industry mentor about the trainee/ interns during the second and third year will facilitate faculty incharge to fine tune the students to meet the course outcome. The feedback shared by students who have previously participated in an internship may be beneficial. Such information shared by students who have completed an internship may be more likely to by students considering an internship than it would be if it was shared by a faculty member – faculty members are expected to make comments concerning focusing on the long-term effects of internships (e.g., ability to aid one’s career) while downplaying the short term (e.g., level of pay and degree of work required).

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**Janardhanan Gangathulasi** holds both Bachelor in Engineering (Civil Engineering), Master's in Engineering (Geotechnical Engineering) from College of Engineering Guindy, Anna University, India and graduated with Ph.D. degree in Civil Engineering from University of Illinois, USA. He is handling both under graduate and post graduate for the Civil Engineering and Human Resource Development branch students. At present he is working as associate professor and involved in training national and international technical teachers and professionals at National Institute of Technical Teachers Training and Research, Chennai, Government of India. He is also involved in the research in Education for sustainable development, solid waste management, landfill design and sustainability engineering. With respect to engineering education, he is carrying out research in the following areas: Redefining laboratory instruction practices, Technology enabled classroom instruction, Outreach, collaborative and experiential based learning, and imbining attitudinal and motivational aspects through the stories of marvelous civil engineering structures. In recent years, he is involved in the outcome based education and quality improvement in higher education through pedagogy and scheduling.