



The Nature of Information Technology related Industrial Attachment in Kenya

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Abstract: Industrial attachment is an important component of learning process in all professions without which most students will not be in a position to actualize the knowledge studied in class. Information Technology profession like other professions requires students to undergo industrial attachment in order to sharpen their skills ready for job market. The study reviewed literature on industrial attachment practice investigating challenges experienced before and during the industrial attachment. The study further did content analysis of the industrial attachment assessment forms of students who were on attachment in the directorate of ICT Moi University. Some of the challenges experienced by attachees include: inadequate finances for upkeep, irrelevant attachment opportunities, limited access to equipment/machines, sexual harassment by staff, supervisors or fellow peers, limited resources and space to accommodate the students on attachment, social media influence, lateness reporting to work station, absenteeism and lack of commitment from institutional supervisors. Analysis of assessment forms showed that majority of the students on attachment had good attitude towards work assigned to them. Moreover they were competent in the work assigned to them and had good social skills but majority had average or poor communication skills.

Keywords: Industrial attachment, phenomenology, Assessment, ICT, attachees

I. INTRODUCTION

Concerns of improperly prepared graduates emanate from employers who are seeking a suitable graduate employee(s). Most employers express the concern of an existing gap between the knowledge gained by graduates in universities and the job market need. Industrial attachment is an important component of learning process in all professions without which most graduates will not be in a position to actualize the knowledge learned during training. It gives a student the power to unravel the knowledge gained by expressing it practically in a working environment. Industrial attachment in organizations is meant to augment learners' abilities and skills so that they can fit very well in the job market (Wilson, 2016). The current job market poses a demand on graduates seeking employment; to possess not only academic qualifications, but also relevant skills for the job market. In order for the students completing university education to conform to this demand, relevant industrial attachment is mandatory. Industrial attachment means, the placement of a person in a workplace for gaining knowledge and practical skills. The aim of this research is to discuss the nature of Information Technology related attachment and associated challenges. The study looked critically into the supervisor's perception while engaging the students undertaking ICT related disciplines in Moi University. The researcher has a long-time experience of mentoring and supervising students of ICT related fields. The period for attachment varies between eight and twelve weeks.

II. RELATED STUDIES

Industrial attachment involves the application of learned skills in an organization related to the student's speciality and should challenge the student to examine the values of the organization involved in the experience, and to assess the student's education as it relates to the Industrial Attachment." The experiences attachees gain in real industry environment will not only help to develop the skills needed to work in the industry; but will also give them interpersonal skills that help them to work effectively with others as they build their confidence. Kiplagat et al., (2016) states that, the purpose of industrial attachment is to explore career interests, obtain cutting-edge skills, get work-related experience, expand one's network of professional contacts, and understand industry expectations. According to Owusu-Acheampong et al., (2014), industrial attachment plays a very significant role in equipping students with necessary skills and experiences to meet challenges in the world of work. Owusu-Acheampong et al., (2014) further opines that industrial attachment develops the competencies and aptitudes of trainees, present a nation-wide mechanism to deal with key skill demand, make available a means for training institutions to act in response to acknowledged areas of national key skill needs. They hold the opinion that during the industrial attachment period, the student is given the chance to integrate classroom theory with the actual world of work.



According to Dondofema, (2020) students are significantly exposed to the workplace through industrial attachment, which opens their prospects for networking and establishing connections with possible employer. Matamande, (n.d.) avers that attachment program is anticipated to contribute highly to academic learning at the institution in line with the rest of the curriculum. Wilson, (2016a) is of the view that financial difficulties, insufficient attachment opportunities, relevance of attachments, restricted access to machinery and equipment, insufficient training resources in some organizations and sexual harassment are some of the major factors that affect attachees' ability to complete their training. Donkor et al., (2009) concurs that challenges for students seeking attachment is lack of free access to machines and equipment, amount of money spent traveling to and from the workplace, and time spent on finding placement. Nunfam et al., (2022) study also provided evidence that the industrial attachment program's ability to enhance students' human capital was hampered by insufficient coordination between technical universities and enterprises. If graduates are to acquire the necessary technical abilities, researchers advise the Ministry of Higher Education and college management to offer a conducive learning environment in these institutions (Mulenga & Chileshe, 2020). Owusu-Acheampong et al., (2014) in their study established that (76.6%) of students were faced with the problem of getting an industry for the attachment, (62.6%) also indicated that the long distance from place of residence to industry poses a very big challenge to them while (35.1%) believed uncooperative attitude of some industry-based supervisors made them find it difficult to participate fully in the attachment process.

III. INDUSTRIAL SUPERVISOR EXPERIENCE IN THE DIRECTORATE OF ICT MOI UNIVERSITY

The directorate of Information and Communication Technology has a criteria that is used in determining the applicants to be absorbed for attachment during admission. The students eligible for the attachment must be continuing students in the following disciplines: Computer science, Informatics, Information technology, Electrical Engineering, Business Information Systems and other IT related programmes. Some of the key pre-requisite to be considered for attachment include: provisional academic transcript showing the student academic progress, cover letter, recommendation letter from the institution of study and insurance cover for safety during the period of attachment. Due to the limited slots, the applicants are shortlisted based on first come first serve (FCFS) basis and available slots. Only the shortlisted candidates are offered opportunity for industrial attachment. The directorate of ICT makes official communication inviting all applicants who qualify for the same. On arrival the attachees are taken through orientation process to familiarize with the institution structure and ICT framework in the University. During orientation process the attachees are informed of the rules that govern the institution, introduction to ICT staff and are provided with a schedule to guide them during the attachment period. The ICT directorate focuses on the following key areas of speciality: Software development, computer networking (cabling, configuration, fibre optic laying and splicing), Website design and development, multimedia technologies, operations and maintenance, database/Server management and information system security.

The ICT department has personnel who specialize in the above stated sections of ICT disciplines. The staff in charge of the student on attachment in consultation with the ICT director prepares a schedule to guide throughout the attachment period. The mode of engagement include, brief demonstrations in the labs focusing mainly on practicals. Practical assignments are given to them so as to build their confidence in handling machines and actual work in job market. During the industrial attachment, the industrial supervisor checks logbooks on weekly basis to keep track of the daily assignments given to them. On the other hand the institutional supervisor comes to visit the student on attachment to ascertain the progress. The institutional supervisor is expected to meet with the attachee(s) and the industrial supervisor to get a brief on the progress on the attachee(s). During this time the institution supervisor checks the logbooks where details of the activities are reported. He /she also discusses with both the attachee(s) and the industrial supervisor on the attachee progress. Moreso the industrial supervisor is provided with assessment form to score those on attachment based on their performance while executing their assignment. The assessment form contains several pertinent questions that give an all-round view about the student on attachment.

IV. METHOD

The study adopted phenomenological approach to establish the experience of the industrial supervision in ICT related disciplines. Phenomenology is the philosophical name for the method of investigating or inquiring into the meanings of our experiences as we live them (Neubauer et al., 2019). A phenomenological research design is a study that attempts to understand people's perceptions, perspectives and understanding of a particular phenomenon (Pathak, 2017). The researcher being an industrial supervisor in the directorate of ICT Moi University, observed how students on industrial attachment integrate the knowledge attained from their learning institutions with industrial environment and the challenges they go through during the said period. The researcher also did analysis of assessment forms of the 2022 cohort of students on attachment in Moi University directorate of ICT.



V. ASSESSMENT CRITERIA

According to Sadler, (1989) a criterion is a property or characteristic by which the quality of something may be judged. Assessment criteria capture the essence of what is important, critical and central about doing well at the particular discipline or area of study/activity covered by the course. The criteria must be meaningful to the particular course; they should not be so generic that they could apply to any course. In Higher education sector, assessment criteria are important in measuring students' learning and support teaching (Waragh, 2019). Industrial attachment has been widely recognized as a fundamental educational tool that allows for the integration of theoretical knowledge with real world practice in the professional field. ICT studies like other practical oriented disciplines allow integration of hand-on skills to complement the theory learnt in class (Koroloff & Rhyne, 1990). Moi University directorate of ICT provides such environment for student's skills and practice to be developed through the following assessment criteria.

TABLE1: ASSESSMENT CRITERIA OF ICT STUDENTS ON INDUSTRIAL ATTACHMENT

1. Attitude to work Respect for authority General appearance & dress Taking and following instructions Time-keeping	2. Work competency Amount of work undertaken Completion of assigned tasks Variety of work undertaken Application of knowledge Theory taught during the course
3. Social Skills Integration into working team Ability to organize and control other staff/users Empathy with other staff	4. Communicative skills Express ideas and convey information Verbal communication with users/clients
5. Professional attitudes Awareness of ideas and objectives of the profession Practical application of professional ethics	

VI. RESULTS

TABLE 2. ATTITUDE TO WORK

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid FAIR	1	7.1	7.1	7.1
AVERAGE	4	28.6	28.6	35.7
GOOD	5	35.7	35.7	71.4
VERY GOOD	4	28.6	28.6	100.0
Total	14	100.0	100.0	

Table2 above shows that majority of the students who were attending attachment at ICT directorate had a good attitude towards the programme.

TABLE 3. WORK COMPETENCY

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid FAIR	1	7.1	7.1	7.1
AVERAGE	4	28.6	28.6	35.7
GOOD	5	35.7	35.7	71.4
VERY GOOD	4	28.6	28.6	100.0
Total	14	100.0	100.0	



Table3 above shows that majority of the students who were attending attachment at ICT directorate demonstrated high level of competency in work output.

TABLE 4. SOCIAL SKILLS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FAIR	1	7.1	7.1	7.1
	AVERAGE	6	42.9	42.9	50.0
	GOOD	6	42.9	42.9	92.9
	VERY GOOD	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Table4 above shows that majority of students who were attending attachment at ICT directorate were equally good and average in social skills.

TABLE 5. COMMUNICATION SKILLS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AVEARGE	9	64.3	64.3	64.3
	GOOD	4	28.6	28.6	92.9
	VERY GOOD	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Table5 above shows that majority of students who were attending attachment at ICT directorate were average communication skills.

VII. DISCUSSION

Industrial attachment is vital in all professions; because it transforms the inexperienced trainees into experienced professionals. Information Technology just like other professions experience several challenges, which sometimes hinder the quality of their practical skills and performance. The study revealed that attachees go through many challenges before completing their attachment program. Some of the challenges include: Financial challenges, time spent on getting placement, irrelevant attachment, lack of free access to machines or equipment, sexual harassment, unconducive work environment and lack of proper planning by industrial supervisors are some factors that compromise quality training of IT students on attachment. The study further established the following challenges as affecting the quality of attachment thus: limited resources and space to accommodate the attachees, addiction to social media by students on attachment, cases of absenteeism, laziness and lateness experienced by some attachees, some institutional supervisors not coming up to supervise their students, some attachees expecting monthly stipend yet not provided by most organizations and cases of some attachees vandalizing training equipment or consumables.

VIII. CONCLUSION

The review of literature and analysis of industrial assessment forms has proved that students who pursue IT related courses can gain a lot of hands-on experience if they get a relevant industrial attachment. The analysis of industrial assessment forms established that majority of the students on attachment had good attitude towards work. Moreso they were competent in the work assigned and good social skills however majority had average or poor communication skills. The study concludes that industrial attachment for IT students is an important bridge between knowledge gained in class and job market opportunities. The stakeholders who include: institutions of learning, industries/organizations, institution and industrial supervisors, attachees, parents, employees in various industries and community at large have a cardinal responsibility to work together and enhance the sector. Efforts employed to mitigate the challenges experienced by the attachees will contribute to very competent employees who can deliver effectively in the job market.



IX. RECOMMENDATION

We recommend that all learning institutions to establish and equip a department to coordinate industrial attachment programme and foster closer liaison with industries, monitor quality assurance procedures, upgrade equipment and technology. Further, institutions of learning to conduct regular reviews of the student attachment programme to fit the current and challenging business environments. Universities, colleges or tertiary institutions should provide an enabling environment where students are equipped with key skills to blends easily with the industry. Students should be challenged to improve on their communication skills besides the technical skills gained during their period of study. Establishing state of art labs, collaborating with professional certification bodies and engaging skilled professionals will enhance the skills gained by the young graduates before joining the job market environment. Various studies shows that most companies or industries prefer to admit attachees who have some experience in the field of their study to add value to their organizations. Preparing the students sufficiently in technical and psychosocial skills will result to effectiveness of the attachment process and hence create opportunities for employment. Organizations should also have clearly set rules and regulations with a strict schedule to guide the attachees during the entire period of attachment.

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