IMPROVING ADMINISTRATIVE FUNCTIONS TO PROMOTE PRACTICAL SKILL ACQUISITION IN SCHOOL OF ORTHOPAEDIC MEDICINE, MULAGO

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DECLARATION

I the undersigned declare that this action research report is my original work and that it has never been presented anywhere else for any academic endeavour and that any other material used herein has been duly acknowledged as references.

Henry Musoke

Sign..... Date.....10/12/2017.....

APPROVAL

This research report entitled "Improving administrative functions to promote practical skill acquisition in School of Orthopaedic Medicine, Mulago has been done under our supervision. It has been submitted to the Graduate School for examination with our approval as the student's supervisors.

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DEDICATION

I would like to dedicate this piece of work to these great persons in my academic journey, Madam Robinah Kiwanuka, Amon Ssemuju and Ruth Nakato.

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MVP has neither been a journey of loneliness nor purely personal effort, but rather solidarity of the entire community of pedagogies and well-wishers in and around the university. To this effect I owe great thanks to my study housemates in particular and entire Cohort five in general for the constructive debates as well as the convivial relationship we have enjoyed throughout this journey. Thanks to the House Mentors, Facilitators, Vincent, and entire technical team at Noma for their kindness and support during this journey. Thanks to the Principal and Administration of UIAHMS, the Principal Tutor, Tutors for allowing and supporting me during the course of my study. Great thanks to the Orthopaedic Officers and other clinical staff for their efforts, and support from the time of situation analysis to the evaluation of the outcome, dear colleagues your support has been a fundamental pillar not only to me as a researcher but to the entire profession of Orthopaedic Medicine. Tributes go to David Bulega and Chris Semahore for their support and encouragement. I would like further to recognize and appreciate my dear wife for the encouragement and support during the course of this study, my children and friends for the love and care, thank you a lot. Action research is satisfying to both the researcher and the community where it is done; however, it's a journey so long that drains energy and resources. Without a determined, self-less and supportive supervision team it's not worth undertaking. To this effect I would like to express my heartfelt gratitude to my dear Supervisors for the dedicated service they rendered me during this study. To the Management of Gulu regional Referral Hospital and NORHED, thank you for the financial support you contribution has been immense.

All that I have been able to achieve is neither by might nor by power but by the Grace of God, to Him be the Glory and Honor.

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LIST OF ACRONYMS AND ABBREVIATIONS

BTVET	Business Technical Vocational Education and Training
CSL	Clinical skills laboratory
IM	Intramedullary
MoES	Ministry of Education and Sports
MoH	Ministry of Health
OPM	Orthopaedic Medicine
ORIF	Open reduction internal fixation
PBL	Problem based learning
UIAHMS	Uganda Institute of Allied Health and Management Sciences

ABSTRACT

This study was conducted from Uganda Institute of Allied Health and Management Sciences located at Mulago Hill Kampala City. The aim of the study was to promote practical skills acquisition through improving administrative functions in the School of Orthopaedic Medicine. It was guided by the following objectives namely to; examine the teaching and learning processes employed to training students in practical skills; identify the gaps that existed in the teaching-learning processes and set objectives for improving practical skill acquisition; implement the objectives towards improving practical skill acquisition and; evaluate the implemented activities to assess the outcome on practical skill acquisition. Using a participatory action research design the researcher identified gaps in practical skills training, set and implemented the objectives. The implementation focused on improving administrative functions which were later evaluated using a participatory approach. Data was collected using interviews, focus group discussions and observations. Data was analyzed under three main themes namely; coordination, supervision and motivation. The findings showed that coordination activities resulted in an improvement in the working relationship among teaching and clinical staff as well as students as seen in increased flow of information, improved ethical conduct among clinical staff and students, and reduction in absenteeism. Supervision was achieved through appointing clinical mentors, involvement of students in the leadership during practicum, increase in contact time between clinical mentors and students and empowerment of students to actively participate in clinical activities. It was observed that these activates motivated the students and clinical mentors which resulted in active participation of students and clinical mentors in the clinical placement. The overall outcome of improving administrative function was active participation of clinical mentors and students during patients care exhibited by the students' ability to perform less complex tasks without direct supervisor guidance. The study recommends sustained dialogue through periodic meetings among stakeholders as precursor to effective coordination and supervision of students during practical placement.

(1980)-Constructivism; Mind storms by Papert (1928)-,...the enlisted philosophers have something in common, the 'construction kit' stimulates learning through manipulation.

The alternative views of vocational pedagogy include the Apprenticeship, vocational education and Communities of Practice (Lave &Wenger 1998). This view point looks at learning as a professional identity. According to Clarke, Hyde, & Drennan, (2013, pg8) professional Identity formation is a process involving many knowledge sources, such as knowledge of affect, human relations, and subject matter. Historically, master craftsmen and rules from craft guilds can be traced back to the Middle Age (Schneider, July 6, 2016).

During the 20thCentury, higher vocational training that increases internship follows Learning as Communities of practice (Lave & Wenger, 1991). Lave and Wenger believe that for a learner to become a member of a community he/she has to move from the periphery towards the Centre. This is only possible by learning through participation and guidance, sharing artifacts (tools, documents, and models), adopting common "language" and practice. In communities of practice contact between the novice and master is crucial, however in the virtual community of practice learning is not affected by the distance. This makes learning virtual communities flexible and learner centered. In a similar path, Dewey, 1859-1952 described vocational training as the structured learning through experience (hands-on, real world projects), guided learner-centered pedagogy connecting subject matters to prior knowledge and experience. Likewise, Kilpatrick 1871-1965 and Freinet, 1896-1966 coined the term "Learner-centered inquiry-based learning through collaborative work", creating products in real-world experience (printing press, field trips...). The aforementioned philosophers believe that learning should be learner centered as opposed to the teacher centered pedagogies and that learning environment should provide tangible experiences. This approach to learning makes vocation pedagogy an exceptional sphere of education that is focused on enhancing the learner's abilities than general education which teacher centered.

Historically, formal vocational and technical education in Uganda can be traced back to; 1903 by CMS and 1911 by the white fathers at Namirembe hill and Kisubi respectively (Sekamwa, 1997). The foundation on which it was laid did not help it flourish nor build the national capacity than merely helping to spread religion. Over the years reforms took place in a bid to boost the education systems for instance an Education Review Commission (EPRC) submitted to the Government a White Paper on technical and vocational education in 1992 (UNEVOC, 1996). The paper called for the restructuring of education to include technical and vocational education from primary to tertiary levels as well as equipping technical training institutions with modern tools and equipment. According to UNEVOC,

(1995) lack of effective industrial attachment, inappropriate methods of assessment coupled with inadequate incentives for students, have remained a big challenge in Vocational and Technical Education in Uganda. Similarly, Okello (April, 2011) noted that though legislations have been put in place there are contradictions in the implementation that affect the translation of knowledge and skills into useful workforce. On the basis of this historical perspective this study undertook to analyze the training of orthopedic medicine students with a view of improving practical skills acquisition.

1.1.2 Contextual background of the study

The school of Orthopaedic medicine began in 1961as Orthopaedic Assistant program during the climax of polio epidemic. At the time of its inception, training of Orthopaedic Assistants was through apprenticeship. The apprenticeship program was handy in equipping the Enrolled male Nurse trainees with necessary skills of handling patients as they continued learning on job. The trainees mastered manipulations and correction of polio contractures and pediatric deformities by casting and traction methods as they worked alongside the surgeon. Although the program was majorly practical oriented, trainees learnt theory through attending teaching rounds with junior medical students in the surgical wards and during case presentations in the side rooms. The Orthopaedic Assistants of that time exhibited mastery of non-operative care of polio and patients with fracture proficiency. This cadre-ship however had limitations that they were only capable of working upon the Surgeons' prescription. Implying that they could not make own decisions and only worked closely with the surgeons due to the limited knowledge of Orthopaedic pathologies.

Having noticed the shortcomings of the apprenticeship program that affected the Orthopaedic Assistants program, a new curriculum was developed in 1971. The goal was to train a professional who could work with minimal supervision in a rural setting. The new curriculum provided laid foundation for a more formalized training of Orthopaedic Assistants for a period of three years. The program was split into one year of basic sciences and two years of hands on under the mentorship of Surgeons. At that time the training was offered by the department of Orthopaedics Mulago hospital and supervised by the training division of Ministry of Health (work based learning). The advantage of this program was that trainees developed competences that enabled them to work more efficiently with minimal supervision in rural hospitals. However it had limitation, owing to the limited number of surgeons (mentors) student intakes were limited and as such only few could be trained. Overall the benefits outweighed the disadvantages because the country saw a decline in the backlog of polio victims.

Following the educational reforms of 1998, the Orthopaedic medicine program like other Allied health Professions moved from Ministry of Health to Ministry of Education and sports under the BTVET Department. Subsequently the students' intake tripled in school of Orthopaedic medicine from 20 in 2000, to 60 in 2003. The increase in the number of students admitted to the program made the practical placement training difficult. This resulted from increasing the students' intake without upgrading of the training facilities within the institution as well as the practicum centers.

The new educational policy brought about changes in institution's structural operations and as a result impacted negatively on the teaching-learning processes affecting the acquisition of competences. The curriculum became more theory oriented to enable trainers engage large student numbers by increasing classroom hours as opposed to the previous curriculum that engaged students for many hours of hands-on training on in clinical areas. In the same way, large numbers of students posed a big challenge for both the school and clinical mentor during placement. The clinical units are limited by the space and equipment to accommodate the increasing student numbers. An attempt to improve the level of competence among trainees in 2015, Christopher Semahore introduced the use of simulated medical skills lab (unpublished research). Results showed a significant improvement in clinical clerkship competence among final year OPM students. Never the less, Christopher observed that due to the ill equipped skills lab, lack of technicians to help the students through practical procedures and poorly motivated clinical instructors, practical skills acquisition remains a challenge. Having noted the aforementioned challenges, the researcher saw a window for improvement. In an attempt to understand the depth of the problem, a situation analysis a necessary tool before undertaking any intervention.

1.2Motivational statement

Practical skill acquisition forms the core of a competent Orthopaedic Officer. Faulty skills acquisition poses a big threat to the safety of the community in which the graduates serve. Training institutions graduate students year after year yet the public outcry for poor and inadequate services is on the rise. During clinical practice and also as a trainer, the researcher interacted with graduates and trainees of Orthopaedic Medicine who acknowledged the poor competences exhibited in the field of practice. Inconsistent skills among healthcare givers decried by the public are attributed to inadequate practical exposure during the course of training and unresponsiveness of the school to this problem. The issue of ensuring quality healthcare services, inevitably cannot be ended without mentioning the process of training. Training a competent Orthopaedic Officer capable of handling trauma and orthopaedic ailments should take into consideration the following; whom, who, what, how when and why to teach. As a practitioner and trainer, the researcher was impelled to pursue these challenges through action

research approach and came up with strategies for promoting practical skills acquisition. Taking an action research approach was intended to engage key stakeholders in the training of Orthopaedic Officers in order to bring about sustainable improvement in the training process.

1.3 Situation analysis

A situation analysis (SA) is a key process for any sound intervention. This helped the researcher to ensure that the critical problem is identified and the best course of action taken. The situation analysis involved conducting; work process analysis, examination of teaching and learning processes and review of relevant documents.

The situation analysis went through stages namely; work process analysis in which the practicing Orthopaedic officers and Surgeon spelt out the details of the activities performed and the required competences. This process was done through conducting structured interviews with the professionals. Through focus group discussions with students and tutors, the second stage of situation analysis was conducted at the training school to examine how the teaching and learning took place. The findings of the two stages were triangulated by reviewing relevant documents to ensure reliability.

The process was sparked off by an outcry from the general public, practitioners as well as personal observation by the researcher through direct involvement with orthopaedic students during teaching and learning. The researcher together with the Principal tutor of OPM School identified key stakeholders involved in the training of Orthopaedic Officers both from the school and the hospital where practical learning takes place. The stakeholders described the steps involved during the training, spelt out key competences, tools and equipment necessary in the teaching processes. In the process, the following key areas that affected teaching and learning were examined step by step namely the learning:-setting, objectives, content, activity and assessment. Under each of these steps, gaps influencing teaching-learning were identified (***Appendix-IA, B.C***).

From the examination of the learning area it was discovered that, students should learn, resuscitation, wound care, application of Advanced-splints in multiple injured patients and childhood congenital deformities. Stakeholders (Tutors, clinical staff and Students) pointed out that the content was mainly delivered theoretically due to lack of practicum space in the hospital. In a standard health training institution the clinical skills laboratory (CSL) would be used to provide students with a simulated environment from which they first learn practical. It was however reported that the CSL lacked proper facilities that could provide real life experience for proper hands on training. Similarly, it was noted that resuscitation drills were only done as one time activity on borrowed equipment. Owing to the gaps in

the teaching and learning processes, students were not able to translate theoretical knowledge into tangible outputs required of them as practitioners. Preferably, clinical learning should take place in the CSL so that by the first practical encounter students have been exposed to simulated models which help them build confidence to try and error without hurting the patients.

When the students have developed confidence to deal with real life situation after learning foundational concepts, they are taken to first observe and later assist in hospital setting such as the accident/emergency department and trauma ward on real patients. To the contrary, teaching took place essentially in a classroom setting. This anomaly was attributed to the large size of the class and small number of teaching staff at the school who handle both theory alongside practical. In the end, practical learning was replaced with theory which led the students to lose out on the competences expected of them during patient care.

Through an inquiry into the course objectives, it was established that the course was purposed to equip students with among other competences, ability to: - assess and support critically injured patients; diagnose and apply proper treatment to fractured limbs; and develop positive attitude as members of the emergency team while working in the emergency department. During the analysis it was observed that demonstrating the assessment and support of multiple injured patients far from being realized. The school lacked a proper learning setting which would enable students translate the theory into practice. Furthermore stakeholders pointed out that the Accident and Emergence section of the teaching hospital allows a very small number of students for placement. The analysis pointed to the lack of amenities for students to practice emergency care protocol (drills) as one of the gaps in the training of orthopaedic, medicine students.

After identifying the necessary competences required of an Orthopaedic officer, stakeholders also reviewed the course content. It was discovered that the content covered was inadequate as regards to the curriculum for the trauma program of WHO. The content of the courses expected to be covered during training included; shock and its treatment, care and treatment of fractured limbs, head and spinal injuries, thoracic, abdominal and pelvic injuries, burns and drowning ,resuscitation procedures; traumatic wound care procedure. It was also noted that the learning environment and teaching methods did not promote skills transfer, which resulted in skills that are below what is required in the world of work. These findings confirmed the assertion by Orthopaedic Practitioners that graduates from the school in the last decade demonstrate poor skills in emergency trauma.

1.3.1Futures workshop

Conducting work process analysis, job profile of a competent orthopaedic officer as well as examination of the teaching and learning process in the school of OPM served as a pointer to the destination but not a location in itself. Without conducting a futures workshop it was such oblivion that the researcher could hardly describe what the actual problem was. Following the analysis the gaps resulting in poor skills acquisition were discovered. These gaps were attributed to the fact that training methods encouraged mainly theory as opposed to practical. Through a futures workshop the root cause analysis was conducted on practical skill acquisition. According to Apel, (2004) a futures workshop is the technique used to shed light on a common problematic situation, to generate visions about the future, and discuss how these visions can be realized. The future workshop for this study was organized on the 16th, December 2016, at the institute - Upper Mulago hill. This study took on a futures workshop method as opposed to other methods of problem analysis because it is democratic and provides a platform where all participants in the teaching-learning process contribute their ideas freely.

The Workshop went through typical phases namely; preparation, critique, fantasy/ utopia and reality. In the preparation phase, the researcher identified participants and formally invited them to the workshop by email and SMS. Participants were drawn from students' population, tutors, clinical mentors, and institute administration. Other activities included preparation of the workshop venue and materials. During the critique phase, practical skill acquisition was introduced to the participants for brainstorming. The causes affecting practical skill acquisition at OPM School were identified. Through the process of brainstorming in a free environmental list of all possible causes were raised ***(Appendix IIA).***Owing to the fact that the causes were numerous, participants were guided to grouping (categorization) of the aspects of concern that are related. The following categorizes were generated, inadequate supervision, inadequate staffing; lack of pre-registration assessment; inadequate coordination; inadequate facilities and resources for practical learning; and lack of motivation.

The outputs of the critique phase formed the inputs of Utopia. The issues that were identified in the critique phase were turned into the positive ideas (goals) which participants ought to experience in the training of Orthopaedic students. The positive ideas became the goals from which objectives formulated were implemented ***(Appendix IIB).***In Utopia numerous solutions were generated, however, due to the limitations in time and other resources it was difficult to implement and as a result prioritization was necessary. Using pair wise ranking method, participants categorized the plausible solutions hierarchically according to importance of identified solutions and available resource. Pair wise ranking

was preferred to other methods of selection because it enabled stakeholders to analyze the goal and set priorities by rating them in order of importance, against the resources required for implementation. According to Russell, (1997) if there are many solutions to a problem, alternative solutions should be prioritized and ranked on the basis of their effect in bringing about improvement to the problem. During the futures workshop Administrative solutions were ranked as priority and members agreed to implement its strategies first*(Appendix IIC)*.The strategies were further categorized as short-term, medium and long-term depending on the resources (time and money) needed to implement them. The short-term strategies were selected for implementation and these included: adequate supervision, adequate coordination and motivation. While the medium and long-term strategies were put in the objective bank for future implementation when resources are availed. It is on the basis of this participatory democratic process that administrative function was selected as a critical problem hindering practical training of OPM School.

1.4 Statement of the problem

Clinical practicum is an important element in the curriculum of Orthopaedic Medicine programme. It is further worth noting that the quality of clinical skill acquisition is crucial to the desired competences expected of this profession. Lately, the training of Orthopaedic Medicine students presents challenges of offering required healthcare, maintaining education standards, and integrating meaningful medical values in students' career life. In ideal situations, clinical skills are inculcated into the trainees through appropriate clinical mentoring. This implies that students work alongside skilled clinical mentors (experiential learning) in appropriate clinical environment in which the patient is at the center of learning. However, in OPM School, this practice is faced with several barriers that affect the proper implementation of clinical teaching. During a future workshop held in December 2016, stakeholders pointed out administrative functions as one of the obstacles to clinical training and thus poor competences.

1.5 Purpose of the study

To promote practical skill acquisition through improving administrative functions

1.6Study Objectives

This study intends to:-

i. Examine the teaching and learning processes employed to teach practical skills.
ii. Identify the gaps that existed in the teaching-learning processes and set objectives for improving practical skill acquisition.
iii. Implement the set objectives to improve practical skill acquisition

iv. Evaluate the implemented objectives to assess the improvement in practical skill acquisition.

1.7 Research questions

i. How is the teaching and learning of practical skills done in OPM School?

ii. What are the gaps that exist in the teaching and learning of practical skills and how can skills acquisition be improved?

iii. How will the objectives be implemented to bring about improvement of practical skill acquisition in OPM School?

iv. To what extent did the implemented objectives result in the improvement of practical skill acquisition in OPM School?

1.8 Justification of the study

Whereas research has been done from the School of Orthopaedic Medicine on improving practical learning no such a study to improve administrative functions has been carried out. Therefore this particular study when implemented would go a long way to promote practical skills acquisition through improving coordination, supervision, and motivating students and clinical staff. Similarly the methodology encouraged ownership of the process and results as well as sustainability of the changes in clinical training.

1.9 Significance of the study

The study was intended to promote practical skills acquisition that would in the end result in competent Orthopaedic officers after completing the three year training program.

1.10 Scope of the study

The scope of the study was limited to geographical area, content and time.

1.11 Geographical scope.

The study was conducted at Uganda Institute of Allied Health and Management Sciences (UIAHMS), located at upper Mulago Hill specifically in School of Orthopaedic Medicine. OPM is one of the school offering clinical programs.

1.12 Content scope

The study focused on implementation and evaluation of administrative functions (independent variable) and their influence in promoting practical skill acquisition (dependent variable). The administrative functions were limited to adequate supervision, adequate coordination and motivation.

1.13 Time scope

The time scope of this study dates back to the 1962 when the training of orthopaedic assistants was introduced in Uganda up to 2017. This time scope is important because it provided an insight to the research problem as well as forming a platform for improvement.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents the theoretical underpinning, related literature reviewed from various scholarly materials to the two main objectives of action and reflection. Related literature for evaluation is based on three main dimensions of administrative functions identified during the future-workshop namely; supervision, coordination, and Motivation during practical skill acquisition.

2.1Theoretical perspective

Learning is defined as an active process that takes place as individuals interact with their environment and incorporate new information or experiences with what they already know or have learned (Braungart & Braungart, 2007).This description by Braungart fits well in the concept of clinical learning that is also founded on the knowledge acquired from theory which is later integrated in the practice in a clinical setting. During clinical learning physicians interact with peers and mentors to frame issues, brainstorm, validate and share information, make decisions, and create management protocols, all of which contribute to learning in practice. It is likely that working together in this way creates the best learning environment which enhances professional practice and judgment (Allodola, 2014).

Literature provides numerous learning theories employed by vocational and technical education researchers to explain the learning processes with the aim of improving teaching. Among the common theories are the:- behaviorist, cognitive social learning, psychodynamic, and humanistic learning theories. According to Dario etal (2006) the behaviorist model involves a teacher-centered approach in which the educator's role is to manipulate the environment for students to elicit a specific response. Behavioral change in a desired direction is the main goal of this learning orientation. For the cognitive theorists, knowledge acquisition is a mental activity involving internal coding and structuring by the learner and suggests that learning happens best under conditions that are aligned with human cognitive architecture. They further suppose that instruction should be based on a student's existing mental structures or schema to be effective (Yilmaz, 2011)

While the aforementioned theories provide an understadinng of learning, the environment is equally improtant in determining which theory best suits a particular circumstance. Learning that takes place in general education differs from that of Vocational and Technical Education setting. As Sand, Patt Elison-Bowers, Wing, & Leslie Kendrick, (2014), explains in a school setting learning is usually

rewarded, students are typically individually accountable, material is regularly taught without the use of typical tools such as calculators, and learning is often decontextualized.

On the contrary, clinical placements are common methods of learning in healthcare education that include professional practicum experience which requires the students to shadow at facilities, much like an apprenticeship model (Sand,etal, 2014). It is worth noting that in clinical education hands on is an important aspect of learning as students assimilate new skills required of them as professionals. While the behaviorist and social-cognitive theories provide a good foundation to explain learning processes, this study found its bearing on experiential learning theory by David Kolb. According to Kolb 1984 as cited by Rizk, (2011) learning is "the process whereby knowledge is created through the transformation of experience and results from the combination of grasping and transforming experience". The preference to the experiantial learning theory is based on the fact that clinical education follows the four learning cycles described by Kolb. Beginning with concrete experience, followed by reflective observation, abstract conceptualisation and active experimentation (Joanne Wright, march 16 2015). According to the reviewed literature on clinical learning by Schwartz, (2014); Allodola, (2014); Sand, et al (2014); and Houghton, (2013) it is recommended that experiential learning is a key method for effective teaching in clinical health programs. Owing to the fact that this study was purposed to promote practical skills acquision in a clinical setting, the researcher based his choice on the already existing documented evidence to support his choice.

2.1 Practical skill acquisition

Practical skill acquisition in health and medical education is used interchangeably with clinical skills placement or hospital attachment. Watson-Miller, (2015) described clinical placement as assigning clinical units or wards within health care facilities for practical training of student nurses in order to link classroom theory with practice. In other wards all learning activities that expose the students to practical work experiences in a real work situation or practical room are embraced.

Documented evidences suggest that positive learning experiences in diverse and supportive clinical environments are essential for quality clinical training and development of competence for practice (Nyangena, Mutema, & Karani, 2011). In the same way, DAVID & HEIN, (2012) affirm that the main objective of practical placement is to offer opportunities to interact with professionals from the domain the students are studying. The practical placements are special learning activities that involve the three entities namely; university, enterprise and the student outside the traditional learning environment.

According to the clinical training guidelines Rwanda-Kigala Patent No. AQC/001/11, (2011) Clinical supervisors, both from the training institution and the clinical/field practice sites, have an obligation to provide regular clinical training and supervision for students, to maintain the professionalism and to safeguard the public from incompetent health workers while continuing to promote learning. Based on the available literature, there appears to be concordance to the importance of practical skill acquisition and improvement of competences in health care profession. This study will seek to implement administrative strategies to improve practical skill acquisition in Orthopaedic medicine.

2.2Administrative functions and practical skill acquisition

Administrations of both the placement hospitals and health training institutions have a role to play in ensuring successful practical training. According to the Medical Council Of New Zealand, (NA pg 5) training organization ought to develop constructive working relationships with relevant stakeholders and promote training and ongoing professional development of medical students. Developing relations with healthcare institutions enables clinicians employed by the institution to contribute high quality teaching and supervision that foster peer review and professional development. The Australian Medical Association ltd, (2009) noted that the fostering, Committee work at hospital, administrative paperwork and communication, Data collection and report preparation to meet hospital are critical to clinical placement in a workplace.

Traditionally, it is assumed that the administrative functions of collaboration and coordination of practical placement is considered responsibility of the training institutions. On the centrally, according to DAVID & HEIN, (2012), the university has the opportunity to plan and organize activities that highly contribute to the increase of employability of its graduates. However, it does not matter who initiated the placement the benefits can be identified at all levels. Similarly the workplace has the opportunity to establish contacts with potential human resources, reducing the costs for future trainings.

From the analysis it is valid to use an action research approach to improve practical skill acquisition in Mulago as it presumed to offer opportunity to all participants in the teaching-learning process to bring about change. Literatures available on practical skill acquisition employs mainly the conventional type of research methodologies, this study therefore seeks to use the Action research approaches to implement and evaluate administrative functions (coordination, supervision, and motivation) as key strategies to the implementation of practical training in OPM School.

2.2.1Coordination and practical skill acquisition

Coordination is an interactive process, and the best results are achieved when it is seen as a common search for optimal solutions through openness, sharing information, and cooperation rather than through applying authority and control (Ben-Gera, 2009). According to Hamza, 2012, coordinating a training course requires a variety of steps, tasks, and skills and begins at the time training is proposed and continues even after it is delivered and participants leave. Conversely, Vanagas & Stankevic, (2014 pg 116,) cited(Bea F. X. and Haas, J. 2005; Ginevičius, Sūdžius 2008; Bakanauskas et al. 2011) who identified division of labor and specialization; individual attitude differences between employees; ineffective communication between employees and managers and limited resource allocation as determinants of coordination. Vanagas & Stankevic, then concluded that co-ordination is essential to directing the activity of all members of the organization towards the main objectives of the organization.

2.2.2Supervision and practical skill acquisition

Supervision is an accountability process which supports, assures and develops the knowledge, skills and values of an individual, group or team. The Purpose is to improve the quality of work to achieve agreed objectives and outcomes (Andrea Rowe: Jane Haywood, 2007 .pg4). According to Mari Wolff Skaalvik, (2011, Pg 6) the concept of "supervision" is used with a unifying meaning and includes different aspects of support to students in teaching practical skills, assessment and facilitation of learning, support the students to obtain clinical knowledge, give feedback, facilitate the merging of theory and practice, role modeling and engaging in critical reflection with the student.

Effective supervision of health training students during practical skills placement is presumed critical in ensuring a safe learning/work environment.

According to the Finish study, it was emphasized that it is essential for mentors to spend enough time with students during their clinical practice in order to ensure the proper assessment of students' behavior (Helminen, Tossavainen, & Turunen, 2014). On the contrary Riklikienė & Nalivaikienė, (2013) as quoted (Peters K, Halcomb EJ, McInnes S; 2013)noted that despite strong willingness of nurses to mentor students in a general practice setting, nursing students were often perceived to be underprepared for their clinical placement. They observed that the dedicated unit model differs from traditional clinical education in the roles of faculty and nurses, the routines that support integration of students into the unit's workflow. It is further stressed that because students are assigned to patients, they may work with different nurses each day still feeling personally supervised and strongly supported.

Literature cited above emphasizes the need for supervision of students during practical skill acquisition in health facilities although it does not necessarily mean that learning will ensue due to other factors. This study implemented supervision of students through appointing clinical coordinators in the various placement units of Mulago hospital in a way to improve skills acquisition.

2.2.3 Motivation and practical skill acquisition

Another key aspect that is believed to influence practical skill acquisition among Orthopaedic students is motivation. According to Williams& Williams (2013), student motivation is an essential element that is necessary for quality education. Lumsden, (1994) noted that there are many factors which contribute to students' interest and level of engagement in learning, and teachers have little control over many of those factors. However, research has shown that teachers can influence student motivation (Anderman & Midgley, 1998; Dev, 1997; Skinner & Belmont, 1991).

According to Nasrin, Soroor, & Soodabeh, (2012) keeping students interested in school and motivating them to succeed are challenges that present themselves year after year. Consequently, studies have shown that, in clinical setting the most important barrier to clinical education is students' lack of interest and motivation. A study done to assess the challenges of motivating nurse students revealed that they need long-term motivation to be able to help others in the future. And so paying due attention to the concept of motivation is of great importance in clinical education (Miers, Rickaby, and Pollard, 2007 cited by Nasrin, Soroor, & Soodabeh, 2012).In the same vein, Henning, (2010) stresses that positive interaction in relation to learning from clinicians and patients will likely increase students' sense of accomplishment. However, low dignity in the clinic decreases clinical learning motivation in the students and represents an unpleasant image because students seek for their future dignity and respect (Nasrin, Soroor, & Soodabeh, 2012)

These motivation components can potentially influence the arousal, direction, and sustainment of students' learning behavior. Kusurkar, (2012 pg 88) said that motivation can influence study behavior and learning in medical students. It is further noted that a blended Problem based learning (PBL) curriculum motivated medical students to learn. Kusurkar described a blended curriculum as learning that complements face-to-face classes with e-learning modules in a PBL curriculum.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter presents the research design, implementation of action research, population, and sample size, sampling techniques, methods for data collection, instruments, data collection and analysis.

3.1 Research Design

This study was guided by two themes that is action and reflection (research). The action phase is intended to bring about change in the existing state of practical training by implementing selected strategies that were identified during the futures workshop. This study employed analytical research design during the planning phase to identify the area of concern through a participatory process (Brydon-Miller, 2003); examination of work-processes, document analysis and future workshop to refine the problem in question. During the reflection stage a qualitative descriptive case study design was employed. According to Yin, (2003) this type of case study issued to describe an intervention or phenomenon and the real-life context in which it occurred. This design enabled the researcher to describe the processes that were involved during the clinical placement of Orthopaedic students.

Similarly, Brown, Dressler, Eaton, & Jocobsen, (2015) noted that Action research is systematic procedure that is flexible and can be adapted to address educational problems. The design is flexible, in a way that it employs multiple data collection methods and tools. Owing to the flexibility of the design the researcher actively participated in the implementation activities without interfering with the normal work processes. This confirms the assertion by Hein, (2009) that action research is a means of in-service training by equipping the teachers with new skills and methods, sharpening analytical powers and heightening self-awareness. Therefore this design enabled tutors and clinical mentors who took part in the research process to gain skills in problem identification and solving.

3.2Implementation of Action production objective

There are many guidelines that have been documented about action research implementation. According to Hine (2013), Action research is described as a 'spiraling- Lewin, cyclical process-Kemmis, as a research 'cycle' –Calhoun and Wells, and as a helix –Stringer. This study employed the helix model that goes through 3 stages namely Look, Act and Think. However, since the problem has already been identified through stakeholders' meeting; the 'Look' stage was not repeated. The study begun from 'Act' phase and implement the strategies identified during the future workshops. During

implementation data was collected and documented for purposes of reflection 'think'. Data was analyzed, interpreted and reflected upon in stakeholders' workshops for planning new strategies for sustainability.

3.3 Population

The study population is described as persons on whom results can be generalized. The study population comprised of the stakeholders in the teaching-learning process at the School of Orthopaedic Medicine. The population was based on the study units that included students (140), teaching staff (8), administrators (2), and clinical instructors (8) from the practicum areas at Mulago hospital.

3.3.1Sample and size

Sample size is the representation of the study population. During the implementation (act) stage a relatively large sample of 45participants were selected. These included 36 year 3 students, 4tutors and 5clinical mentors. However at the think stage, a smaller sample 22 units was selected to evaluate the outcome of the implementation. The small sample for evaluation enabled the researcher to employ qualitative methods of data collection in order to obtain details of the strength and weaknesses of the actions taken. Owing to the nature of data collection methods to be employed large volume of data is expected to be generated from focus group discussions. According to Teddlie &Yu, (2007) the rule of thumb is, plan three or four focus groups with any one type of participant. Once you have conducted these, determine if you have reached saturation. Saturation is a term used to describe the point when you have heard the range of ideas and aren't getting new information. Likewise Ritchie & Lewis, (2003) stress the need to concentrate on the depth of the data being collected than on the breadth in terms of sample size. Based on the above arguments the sample population was selected.

3.3.2 Sampling technique

The study took on a mixed method of sampling namely purposive and probabilistic simple random sampling. A purposive sampling technique was employed during the selection of the sample population from the target population of administrators, tutors, surgeons and Orthopaedic Officers. Purposive sampling enabled the researcher to select influential stakeholders to implement the identified strategies and evaluate the outcome. McMillan, (1996) pg 92 stresses that based on the researcher's knowledge of the population; judgment is made about which cases should be selected to provide the best information to address the purpose of the research. Similarly, according to Teddlie & Yu, (2007), purposive sampling helps to find instances that are representative or typical of a particular type of case on a dimension of interest. The simple random sampling technique enabled the researcher to select a representative sample from the final year students' population without bias. Using the sitting

arrangement in class of 6 rows by 6 columns, 12students were selected for the study using raffles. While purposive sampling was used to select teaching and clinical staff with ease based on their involvement in practical placement of students it was not easy to purposely select student that why random sampling was employed.

Table 1: Sampling methods and sample size

Categories	Target Population Size (N)	Sample size (N)	Sampling Techniques
Administrators	4	1	Purposive
Full-time Tutors	5	4	Purposive
Orthopaedic Surgeon	9	1	Purposive
Orthopaedic Officers	18	4	Purposive
OPM Students	36	12	Simple random
Total	**75**	**22**	

(Data extracted from institutional registry)

3.4Methods of data collection

Qualitative Data collection methods were used, these methods enabled the researcher to gather detailed information that could not otherwise be generated using quantitative methods like a structured questionnaire. The methods included futures workshop, small group discussions, participant observations and document review. The futures workshop was used because it enables all stakeholders affected by the lack of practical learning to walk through the journey of improving this aspect. According to Lauttamaki, (2014) workshops can be used for assessing the future and finding alternatives for current activities, seeking possible new directions against the outlined future possibilities. In this study, futures workshops were used during the implementation phase to monitor the progress and also collect data about the progress. Similarly observation was used in the clinical areas and documented what and how the implementation was progressing. Observation helped the researcher to participate in the implementation processes as data is gathered. Baker& Foy, (2008) stresses that observations help in preventing the possibility of distortion that may arise when people are asked to report their own behavior.

3.4.1Instruments of data collection

Data collection is an essential component to conducting research. According to (Kajornboon, accessed 2017), to collect data the researcher should be able to access the source from which the required data is generated. It was from this foundation that data was gathered from a number of sources including

written minutes, records of clinical assessment exams, observation of clinical procedures during practicum, focus group interviews and evaluation meeting. The main instruments of data collection in this study were observation check list, interview guide **(appendix III),** flip charts and marker pens, dairies and a camera.

3.5 Procedure of data collection

Data collection was preceded by seeking permission from the Principal of UIAHMSand Principal Tutor OPM School. Upon receiving permission, stakeholder meetings were convened to assimilate them in the study that was aimed at improving administrative functions and enhance practical skills acquisition in the school of Orthopaedic medicine. The lead researcher explained the procedure of data collection to the stakeholders and their role in the process. The procedure included the agreeing on the tools and how they were to be administered. In the implementation stage data was collected by interviewing students during clinical procedures, observation and taking photos that do not contravene the principle of patient's privacy. Interviews were transcribed by the researcher and observation check lists completed. Data was later typed in Microsoft word, documented and stored as narrative.

During the evaluation stage, data was collected using two approaches namely; clinical assessment examination and stakeholder evaluation workshop. The researcher organized a meeting with the teaching and clinical staff prior to the assessment exercise. The meeting helped to synchronize the assessment tools that were used and eliminated bias which helped to obtain uniform results from all examiners. The researcher later participated in the assessment exercise by working on rotational basis with other examiners and further worked as the secretary during the post assessment meetings with the examiners. In the process collected data from the results of the clinical assessment that were later analyzed and compared with the previous results.

More data was gathered through holding a stakeholders' evaluation workshop. Prior to the workshop letter of invitation were sent out calling members to the evaluation meeting **(Appendix IIIC).** An instrument and other workshop materials were organized. A copy of data collection tool was given to the supervisors for their input. Upon approval a workshop was conducted in a democratic environment and data collected on visual charts, photography and transcribed notes.

3.6 Reliability and validity

Reliability and validity are conceptualized as trustworthiness, rigor and quality in qualitative paradigm (Golafshani, 2003). In order to ensure reliability and validity of the research finding this study employed multiple data collection methods namely, observation, focus group discussions and participant clinical logbooks and attendance register. In the same way the researcher ensured validity of

responses given by the participants during the implementation stage, through repeating the same questions in the evaluation workshop. The questions were phrased as statements and participants were asked to give responses using a Likert scale. This is supported by Brink, (1993), who said that validity can be improved by interviewing the same informant on several occasions and making observations more than once and over time. The data collected showed consistence with what was observes and responses collected during implementation. Similarly, validity of data was be ensured by asking participants to review the researcher's synthesis of interviews for accuracy.

3.7Data Analysis

Data was analyzed majorly using both qualitative methods; however there was a small portion of data that was analyzed and presented quantitatively. The use of multiple methods enabled the researcher to utilize and triangulate all data generated which helped to minimize errors. Using multiple methods of data analysis also enabled stakeholders to understand the outcomes of their participation. During the analysis process, qualitative data was transcribed, categorized, and grouped under three main themes namely: - Coordination, supervision and motivation for easy analysis and interpretation. In the same way, the analyzed data was presented as narrative and backed by incident photographs and table of summarized data. On the other hand quantitative data generated from the assessment exam was organized and presented in tables. Analysis was done using descriptive statistics to interpret the results generated.

3.8Data dissemination

Study findings will be presentation at conferences, workshops, publication in peer reviewed journals. This report includes findings on how effective use of available skills lab resources is enhancing clinical clerkship competence among OPM students at UIAHMS, Mulago.

3.9Ethical consideration

Following identifying the area of interest for a study, a letter of introduction to the Principal of UIAHMS was written by the MVP program coordinator. The letter served the purpose of introducing the researcher as a student of MVP seeking permission to carry out action research at the school of Orthopaedic medicine. Upon receiving permission a stakeholders' meeting was convened and participants were briefed on the need to carry out a participatory research in the institution and how this will benefit them and the institution if implemented. Through dialogue, verbal consent was obtained and participants pledged to participate in the research processes as requested. Anonymity of the participants was highly observed to ensure the principle of confidentiality.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0Introduction

This chapter is a presentation and interpretation of the data generated during the implementation and evaluation stages of the action research. The purpose of this study was to improve administrative functions and promote practical skill acquisition in the School of Orthopaedic Medicine. The implemented actions were geared towards improving administrative functions which in turn would promote practical training for acquisition of the desired competences. During the implementation phase the researcher participated in the activities and collected data by writing notes in the meeting, observed students and clinical mentors in the clinical areas, observed assessment of students at the end of clinical rotation, analyzed progressive assessment scores from semester one and conducted small group interviews. The data collected was organized and presented in accordance to the three themes of administrative function namely; I) Coordination, ii) Supervision and iii) Motivation.

4.1 Implementation of the administrative functions to promote practical skill acquisition

Under this objective, stakeholders focused on improving coordination between school and clinical practice, strengthening supervision of students during practicum and motivating both students and clinical mentors. In a futures workshop the stakeholders noted that poor coordination between the school and clinical placement areas was one of the critical factors affecting the teaching of practical skills in the OPM School. In line with this problem stakeholders put in place strategies that could help improve the teaching of practical skills. The strategies that were identified included; developing practicum activity plan for semester II, harmonization of program time tables and clinical Rota and regular stakeholder meetings.

4.1.1 Coordination and practical skills acquisition

In the implementation phase, two meetings under the theme of coordination were organized. The participants in the meetings included 4 tutors, 8 clinical staff, and 12students who were regarded as stakeholders. In these meetings stakeholders revisited the objectives that were developed during the first futures workshop that were held earlier during the initial stages of the study. In this workshop, Stakeholders were assigned responsibilities and a time frame for the execution of the activities that had been drawn. Key outputs of the meetings included: - an activity plan for semester two; developing time-tables and clinical placement Rota; appointment of clinical mentors to coordinate and supervise the practical teaching of students during clinical rotations in the hospital.

In the first future workshop the issue of clashing timetable was raised as affecting practical training in OPM School. It was further noted that the part-time tutors had failed to abide by the allocated time but instead used the time for practical learning. During the coordination meetings, the problem of clashing time-table was analyzed and the root causes identified as, poor time management by both teaching staff and students, poor communication between the part-time staff and the school administration, poor preparations on the side of part-time staff and poor teaching methods. A resolution was reached to resolve the problem by circulating the school activity plan and draft time-tables for the three classes of students to all part-time tutors. Feedback was given to the principal tutors about the necessary changes and they all agreed to the new changes. The changes on the time-tables were adopted by all teaching staff. Following the changes it was observed that no lecture was conducted during the period scheduled for practical training in semester two. This confirms the claim that there was poor communication between the school administration and part-time teaching staff during the planning of semester activities. The poor communication was to a greater extent solved through involving all stakeholders in the early stages of planning and making the time-tables and practicum schedule for the second semester (see plate 1).

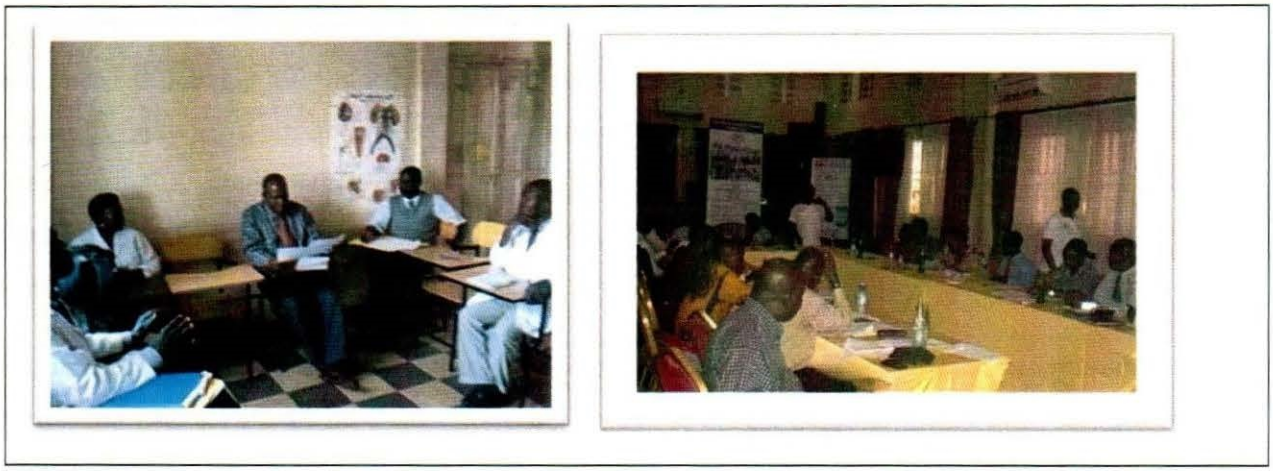

Plate1: A section of Health tutors and clinical mentors during coordination meeting (11th/11/2016)

(Source: Primary data)

Through coordination meetings, another gap in communication was pointed out as a factor affecting practical skills learning. It was noted that poor communication impeded the flow of information between the students, clinical mentors and the teaching staff. As a result there was tension between these groups of people which lead to distrust, disrespect and promoted lack of interest among clinical mentors especially when students were recalled from practicum to attend theory lectures. These negative effects were exhibited by the poor morale mentors demonstrated while students were on clinical placement in the hospital. It was further noted that the school was not sending formal

communications messages to clinical units; prior to the clinical activity neither did it involve clinical staff in planning practical placements. Regarding the issue poor communication, it was agreed by all stakeholders to conduct regular meetings to discuss matters concerning of students' training. The result of this process was that the synchronized time-tables were circulated to the clinical units to ensure that all stakeholders are informed of the school activities. In the process time for clinical learning was respected which helped students to participate in the practical activities without being interrupted. In the end there was smooth participation in clinical activities with very minimal interference from the school. This helped to improve on the time for practical learning at the clinical placement areas.

A- Harmonization of timetables. Participants noted that part time tutors did not respect the school program and were often drawing students away from the clinical units for theory lectures. As a result they used the time that is convenient to themselves though not appropriate and hence reducing the time for practical learning. It was also noted that students engaged in extracurricular activities that collided with the time for practical placement. This was as a result of poor organization on the side of the school administration. Extracurricular activities that were based on community grouping (ethnicity), associations and religion within the institution have consumed part of the students' time meant for skills development. Owing the direct and immediate benefit the leaders of the groups drew from these activities, they set them as priority and influenced their members at the cost of learning. Therefore harmonizing the timetable and school activity plan brought about an end to this conflict and helped to streamlined practical training. Eventually the students' extracurricular activities were programmed for weekends though the guild activities were hard to influence.

Harmonizing different activities helped to identify critical tasks that would otherwise contradict each other. The outcome of the harmonization meeting was to have 2 hours of theory every morning before attending the practical sessions to enable part-time lecturers cover the required curriculum content. Students pointed out that the practicum units are effectively working from 10:00 am, because the early morning hours are meant for cleaning the wards by the cleaning company. In the long-run absenteeism from wards reduced and active engagement in the practical activities increased since students got to the practicum units when activity was at the peak. Although the timetables had been synchronized, 6 of the 36 (17%) final year students did not report to their practicum units in the first week. Three of the six (3/6) students cited reasons that they used the first week to complete their research proposal writing, while the other three reportedly had social obligations to fulfill before engaging in clinical practice. This therefore meant that scheduling of the program activity alone may not greatly influence students' practical training.

B-Student orientation

It was reported by the clinical staff, that students tended to regard practicum placement as a free time/ holiday from study. Students used this time to organize other activities that usually do not contribute to professional skills acquisition. According to the stakeholders, this tendency in the past resulted in poor clinical work attendance which affected their practical skills acquisition. Activities involving career and social grouping were identified by the stakeholders as practical time waster. Participants agreed that student leaders should organize a career orientation workshop to streamline the academic requirements of the course with social responsibility. The implementation of this task was a 2hours meeting between a section of the teaching staff and students.

The outcomes of the meeting included; - Involving students during the planning stages enabled them to answer the following questions; (i) why practical in the clinical units and not skills lab? (ii) Why cover a long time and not few hours? (iii) Why unstructured with no specific topic to cover during a specific time? This orientation helped to link the theory of Orthopaedic medicine with the practice in real life. As a result, students discovered the essence of clinical placement and resolved to participate in all clinical activities organized by the school. While on the side of Tutors, this meeting helped them to discover why there had been poor attendance during placements. In the same way it was observed that the failure in implementing practical learning is not a mere poor attitude of students but it had a bearing on the approaches used during placement. After the orientation meeting a follow-up was made by visiting the clinical placement areas. The objective of the visits was to assess any improvement regarding students' attendance and participation in the practical activities. The remarks made by the mentors in the surgical out patients clinic and trauma ward indicated that there was an improvement in the students' attendance highlighted in the following excerpts.

- Morale is high and they have the interest to learn more than during the previous semesters (mentor)
- Less cases of absenteeism, although some of them report late saying they are non-resident being delayed by looking for breakfast (mentor)
- We allow them to discover what they want to learn and engage them in discussions afterwards. This helps them to own the learning process (mentor).

In the same milieu students were interviewed from their clinical placement units to find out how they were progressing especially after the orientation meeting. Majority of the students appreciated that there was a great improvement in the learning process as evidenced by the responses below;

- Clinical mentors are supportive and encouraging, even when you have a problem they are approachable (student X).
- They used to dissociate themselves from the school but now they are part of us to the extent that they want to know what happened if you missed (student Y)
- The timetable is respected no teaching goes on after 9:00Am (student A)

4.1.2 Improving clinical supervision to promote practical skill acquisition

Another aspect of administrative function that was presumed to affect practical skill acquisition was supervision of students during practicum. In the first meeting that was held earlier, participants noted that supervision of students during practical learning had been lacking. It was envisaged that in order to ensure effective supervision of students during practicum, employed the following activities; it was necessary to, i) improve mentor-student contact time, ii) include subject content covered on placement letters that are given to the mentors, appoint and also facilitate clinical mentor, iv) introduce students to simulated practical during theory and is collectively conduct assessment exam at the end of the placement. Regarding this objective figure 1 shows a schematic presentation of the activities that were implemented and the observed outcomes in a summarized chart.

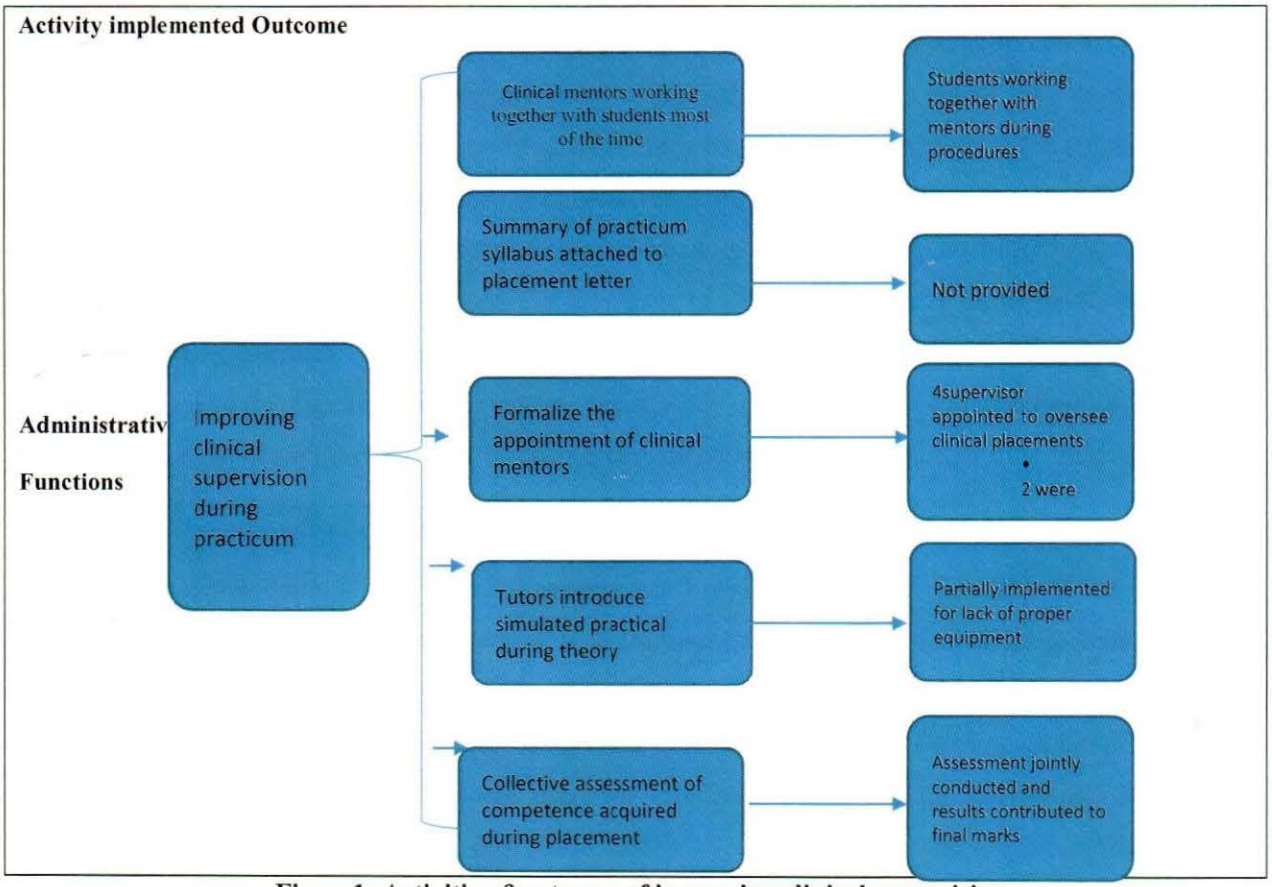

Figure1: Activities &outcome of improving clinical supervision

From the results presented in figure1 above, full time mentor-student contact during practicum was observed in 7 of the 10 placement units. The improvement of contact time is a key ingredient in practical training because it offers students' opportunity to ask questions whenever need arise. In one of

the placement unit a group of four students did not report for placement at all. These students pointed out reasons relating to personal and social problems that had hindered their attendance in the practical unit. While in the other 2 placement units (operating theatres) students reported that they had on average 60% contact with the appointed supervisor. As a result students noted that they were able to learn some concepts of theatre techniques within the allocated time they spent in these practicum units as mentioned by one of the students in the excerpt.

> "Although there was distant supervision from the theatre manager, we leant sterilization process, Preparation of operation instruments. But we had less participation in surgery with the doctors because of limited space. Overall we learnt some new ideas although there was limited hands-on during operation (student P)."

Lack of direct supervision denied students meaningful exposure they would otherwise have benefited from during the procedures carried out in these practical units. Without clinical supervision students are bound to make mistakes during the try and error method of learning. As a result they develop wrong skills that are harmful to the community. In order to improve clinical supervision of the students during practicum training, formal appointment of clinical mentors was suggested by the stakeholders. The stakeholders agreed that officially appointed clinical mentors take more responsibility towards training of the students in the practicum units because they have to give accountability to the institute Principal at the end of the placement. When they are formally appointed the student leadership is informed and students are asked to appraise their mentors periodically to see if they are meeting the intended objectives. The expected outcome was to ensure that mentors dedicated enough time towards guiding and supporting the students during clinical learning.

During the implementation phase, formal appointment of seven mentors by the office of the Institute's Academic Registrar to oversee students' practical training and linking of the school to other hospital staff was done. This process gave birth to an improvement in direct supervision of students during clinical placement which created a sense of relevancy and respect for the learning process. When the mentor worked alongside with the students, there was emphasis accorded to the activity and the level of students' concentration increased and as a result students retained the content. Owing to the fact that learning from a clinical environment carries risks on the side of patients, the need for closer supervision to ensure their safety was paramount. While the clinical mentors supervised and guided the students during clinical procedures, the patients benefitted from the care as the students benefited by learning in the process.

Activities of facilitation of clinical mentors by administration: Clinical mentors take the role of work place instructors from whom students derive skills in real patients setting. This process is critical in nurturing young professionals in the aspects of patient care and respect for life. During the situation analysis, stakeholders pointed out that, students were neglected by clinical mentors in the practicum units where they are placed citing lack of facilitation for mentoring students. Lack of mentor facilitation was one of the reasons cited that makes making them pay less attention to the supervision of students placed in their units.

The strategy of facilitating clinical mentors was implemented with the aim of enhancing the morale of supervisors to guide students during practicum. However, the number of clinical mentors was beyond the capacity of the school administration to provide meaningful incentive. Therefore, in line with this activity, stakeholders agreed to appoint four clinical instructors to preside over the 10 practicum units in the Orthopaedic Department. Their appointment was based on seniority, responsibility held and experience in training of students. The four senior officers appointed had undergone clinical instruction course during the time OPM School was under MoH. This prior training gave them special attributes required in the clinical mentoring process. The other Orthopaedic officers who mentored students during practical placement were motivated through participating in the summative practical examinations at the end of the semester. This activity has seen an increase in the contact time between students and mentors. Mentors were able to accommodate students' speed of learning during clinical procedures and also freely interacted during case discussions ***(plate 2&3).***

Plate 2: students participating casting procedure on the Ward (26TH/04/2017)

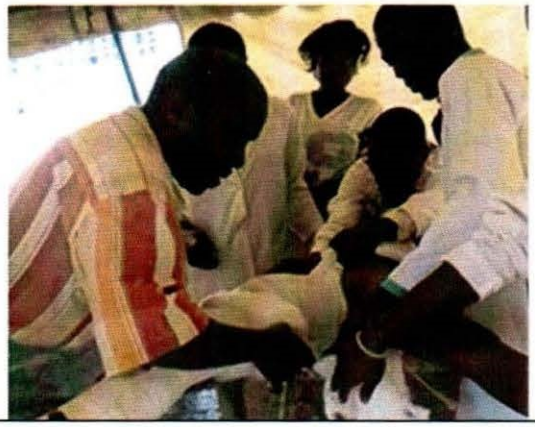

Plate 3: Clinical mentor leading fracture treatment procedure (26TH/04/2017)

The outcome of this arrangement saw a change in the way students are instructed and mentored during clinical placement. It was observed that there was close interaction between students and mentors. Mentors assigned tasks to students, engaged them in case discussions and implementation of treatment plans. As a result, students enjoyed ample time of hands on sessions with mentors besides them (close supervision).

Activities on integration of practical teaching during teaching theory

The fourth strategy that was proposed during the situation analysis was to integrate practical teaching during theory lectures. This came as a result of students pointing out that some tutors are teaching theory without integrating it with practical demonstrations. Students noted that even when the course content being taught demands for practical methods some teachers present it without any form of demonstration, "*(tutors should be practical)"*a student emphasized. The method of teaching should be determined by the expected outcome. When the objective of the lecture is that students should demonstrate how a procedure is carried out, then the method of teaching should involve a demonstration in order for the students to learn the skill that cannot be done theoretically. The inadequacy in the teaching methods resulted in the suggestion that tutors should utilize the skills lab and demonstrate to students the procedures using simulated models prior sending them for clinical placement. The purpose of this strategy was to ensure that students gain confidence in performing clinical procedure before going to the real work setting. The agreed indicators were in terms of procedures carried out from the skills lab and number of students accessing the lab for return demonstrations during their free time.

During interviews to ascertain whether tutors were "practical" and performed demonstrations during theory lectures. Responses from 4 small group interviews revealed that most of the tutors teaching the senior class did not utilize the skills lab citing lack of proper equipment and simulated models. "*You will learn these things when you go to the wards because we do not have simulators here"* a student quoted one of the tutor's statement made during a lecture. Students further reported that only two tutors performed procedures from the skills lab. They observed that integrating practical demonstrations in classroom setting helped them to practice some procedures that are not commonly done in clinical units. They cited trunk casts and skeletal balanced traction that are no longer used as a method of treatment in the teaching hospital due to advancement in surgical treatment. While surgery has replaced trunk casts and tractions in Mulago teaching hospital, they are widely used in most general and regional hospitals within the country. It was therefore imperative that demonstration in the skills lab was done to expose and equip students with the necessary skills. Students however, decried the poor utilization of skills lab

which affected the way they performed task in theatres where prior exposure was paramount as in the excerpt recorded in box 1.

Box 1: Responses from student on integration practical teaching in theory lessons

- *"The skills lab is useless to us, it's ever closed during the time we are free yet we could try some procedures by ourselves before we go to the wards"* a student commented.
- Other students affirmed during the interview, *"we are embarrassed when we are asked to do a procedure and fail"*
- *In procedures we have tried out before placement we are confident and willing to do them* another student retorted.

The responses generated from students portrayed a sense of demotivation as a result of inadequate practical learning before being sent to the clinical areas. The lack of practical skills acquired through practicing with the simulated objects of learning denied the students an opportunity to engage in practical activities they would have otherwise benefited from in the clinical areas. This therefore showed that teaching of practical alongside theory increases students understanding of clinical concepts and improves their confidence and performance during clinical encounters.

Joint clinical assessment of students following clinical placement

Another activity of improving clinical supervision was to carry out clinical assessment exam at the end of practical placement with involvement of the clinical mentors as part of the assessors. Previously this strategy was in place but stakeholders sited loopholes that included; use of subjective assessment tools, students being assessed in absence of the mentors which resulted in criticism of level of competence, using a single examiner citing lack of personnel to assess big group of student and determination of clinical competence basing on only one procedure. It aimed at resolving the issues that were highlighted as causes of faulty skills development.

During this study, the exercise was done with the involvement of both tutors and clinical mentors who took part in the practicum training. The assessment took place after the rotation was completed, both tutors and clinical mentors were informed and students given a briefing by the clinical coordinator prior to the assessment. This assessment was hands on examination carried out from Trauma, Orthopaedic and Spine wards. The students were examined on 3 different case diseases and awarded marks that contributed to 50% of the final practical score. Each student had a tutor and clinical mentor examining him/her and the marks were based on the average mark generated from the individual scores done by the two assessors.

4.1.3Improving Motivation

The third aspect of administrative function that was considered in this study is motivation. In an earlier meeting with stakeholders it was envisaged that motivation was another key factor that could promote practical skill acquisition. Poor student involvement in clinical activities during placement, absenteeism, misguided expectations about the course, use of abusive language by qualified staff and failure to instill discipline in students found faulting ethical code of conduct. The factors enumerated above were cited by stakeholders as causes of low morale in students and hence affected the students' ability to learn during practical placement.

Stakeholders predicted that reversing the above factors would yield improvement in skill acquisition. In the process the following activities were agreed upon and implemented as solutions to the poor motivation these included; -i) Orientation of students prior to practicum placement; ii) respectfulness between hospital staff and students; iii) observation of professional ethics by both students and staff; iv) giving students opportunity to initiate the learning process; and v) involvement of a motivational speaker who went through OPM school. The details of the above mentioned factors are highlighted in appendix.

Orientation as a strategy to motivate students towards practical training

A group of 32/36 (89%) third year students were oriented into a practical training session that was conducted by the clinical instructor, principal tutor and head of orthopaedic officers from Mulago hospital. The key issues that were discussed included; practicum placement as a method of health care training, the role of clinical practice as opposed to skills lab training, the behaviour of trainees and trainers, roles of students and clinical mentors/supervisors in practical learning, patients' rights and time management and absenteeism from placement. Deterrents of practical training that were identified included; poor interpersonal relationships between students and mentors, absenteeism of students who regarded practicum as a holiday from academic work, and admonishment for errors committed during the clinical procedures.

Students drew a list of resolutions that were agreed upon to be shared in the meeting with the office of the Principal Tutor and head of Orthopaedic Officers in Mulago for implementation. The resolutions indicated students' commitment which they had agreed upon to follow during the schools training program and that they were willing to enforce them in order to benefit from skill acquisition. The monitoring tools included; attendance student registers that were meant to assess the level of participation through daily roll-calls, incidence reporting by the mentors to the office of Principal Tutor. Analysis of the tools revealed that there was an improvement in attendance and participation in clinical

work, absenteeism was reported among four (4) students out of the 36 third year class. Of the 2/4 students who did not turn up for clinical placement for a week, did not attend the students' orientation meeting. This was discovered from both the daily attendance register and the incidence report that was given by the unit head mentoring on the Spine Ward. Other cases of malpractice were related to late reporting to clinical units by a few students residing outside the institutional hostels.

Activity on participation of students in clinical procedure

Activity two was intended to allow students to participate actively in clinical procedures rather than being observers. Previously owing to the poor mentor-students relationship, mentors opted to carryout procedures while the students kept observing. Learning was rather theoretical than hands on which demotivated the students. This was corrected through actively engaging students in all processes of patient care right from clinical assessment, investigation, diagnosis and treatment. Students were allowed to identify patients who required treatment search for the relevant theoretical knowledge and present to the mentor/ officer caring for the patient. The outcome was a reduction in the level of absenteeism and increased participation in clinical procedures ***(see plate 4&5 below).***

Plate4: students preparing skin traction materials (19TH/04/2017)

Plate 5: students apply cast as mentor observes (28/04/2017)

Following development of a supportive clinical environment, the researcher observed an improvement in the overall students attendance during the semester two of 2016-17 as compared to semester one. The students showed interest by engaging in interactive discussions with supervisors and were open to criticism and correction. Similarly the willingness of supervisors to allow students try out their skills during clinical procedures without fear of making errors encouraged students to participate with ease. The free procedure environment lessened the tension that would otherwise build in the students and thus

reduce the chances of making mistakes. This approach coupled with the good mentor-student relationship eased the learning process and skills acquisition. The whole process resulted from the stakeholders having defined roles and responsibilities during the orientation meeting. Students appreciated the differences between classroom and the clinical settings and how to utilize the differences for the gain of practical skills.

4.2.0 Evaluation of the implemented administrative activities to promote practical skills acquisition.

Following implementation of the agreed upon activities, it was important to assess whether the activities yielded the desired outcome. That is check whether students acquired practical skills and that teaching and clinical staff developed willingness to promote and sustain the changes that had been initiated. Using the Likert scale as a measure of the degree of how well the activities met the intended objectives, the researcher guided the stakeholders through an evaluation exercise. The process was carried out in a free participatory and democratic environment which allowed all participants to evaluate every activity according to their level of satisfaction. The responses ranged from strongly disagree to strongly agree and in cases of outlier scores participants were requested to support their assessment level with reasons. The responses generated were recorded in form of cumulative frequencies from which the researcher computed mean values to measure the level of agreement/satisfaction.

The number of participants who took part in the evaluation workshop was relatively lower, 19/25(76%) as compared to those who participated in the planning workshop. The reduction in the number of participants during evaluation was attributed to the intensity of activities that took place at the time of evaluation. However majority of the important and knowledgeable stakeholders participated, hence this did not affect the results of the evaluation process. By show of hands, responses were generated and counted basing on the level of agreement with the results of the implementation activities that is, strongly agree being highest while strongly disagree as the lowest, The three parameters of administrative functions that were evaluated included; i)coordination, ii) supervision and iii) motivation. The findings of these three aspects are presented in the subsequent sub-themes in relation to enhancing practical skill acquisition.

4.2.1 Coordination and promotion of practical training

Coordination was implemented through ensuring that: - all activities of the timetable were synchronized; introductory letters sent to the placement units written and the course content that was covered in class included; supervisors' follow-up students during practicum; and students play a role in coordinating practicum activities.

The stakeholders evaluated each of the above aspects of coordination in relation to how they were implemented. It was observed that generally the coordination was implemented well in all the set aspects. All participants (17) accounting for 100%, agreed that the aspect of supervisors following-up students at the placement areas was well implemented. Similarly during the monitoring process of practicum 27/36 students affirmed to the supervision by the clinical coordinator from the school. However 8/27 noted that the coordinator sometime reached their placement unit when they were busy and could not share with him the challenges they encountered in learning. During an interview with a group of the students from one of the placement unit, the following issues as highlighted in Box 2 were raised as the major challenges they faced in the placement units.

Box 2: verbatim responses on challenges encountered by students in clinical areas

- "We Lack theatre attires and on some occasions protective boot, which expose us to the risk of getting infection; (student)"
- "Nursing staff are rude and use harsh language when responding to our queries (student)."
- "There is a surgeon who embarrasses us in front of patients that we are wasting time (student)"
- "We were only left to observe while the clinical staffs performed the procedures (student).
- "Insufficient supplies form the hospital stores has denied chance to fully participate in the clinical activities that would otherwise improve our skills"

From the excerpt above, it is visible that lack of proper communication hampered effective skill acquisition through creating fear among students. The issues pointed above affected students' opportunity to get involved in the execution of practical activities and acquire the necessary practical skills. Students further reported that they were only left to observe while the clinical staffs performed the procedures. These challenges were ascribed to the missing link between the Orthopaedic Officer and the other members of the team. When the students are denied opportunity to have a hands-on experience they fail to integrate the theory learnt from class into tangible outputs required of them in the world of work.

As part of the theatre team responsible to ensure the learning of Orthopaedic students would communicate to the school the necessary requirements required of student to facilitate their learning in the operating theatre. Following the report, stakeholders agreed to include protective theatre wear on the list of requirements that the students should bring when reporting to the school. This will reduce on the burden of lack of supervision in the operating theatre and also increase student participation in procedure without fear of exposure to hazardous materials.

Concerning the activity of synchronizing the timetable, 82% of the participants strongly agreed while 18% agreed. Owing to the narrow margin between the strongly agree and agree, participants opted to aggregate the two perspectives and have 100% agreement from both. The results of the evaluation were confirmed by the proclamation made during field interview with clinical mentors as evidenced in the statements below.

- *For the first time students were not called back to school, though they were reporting late to the wards, (clinical mentor)*
- *When we start early these students miss the procedure and for their sake we delay working on the patient until when they come to the wards (clinical mentor)*

Another aspect of coordination evaluated was inclusion of a summarized practical syllabus on student allocation letters. Results showed that 87% of the participants were in agreement that letters bore course content while 13% disagreed. Those in disagreement pointed out that there was no communication about what the students had covered. In relation to this the following responses from some of the stakeholders were recorded;

- *"Actually I have never seen any letter from school, if such a thing happened it was only addressed to the In-charge and was personal not for us all. Personally I work with these students but it's very hard to assign tasks because they are mixed second year with 3rd years. School should provide enough information if we are to help these students".(clinical mentor)*
- *"We got 2 letters the one for Bombo Hospital had the content but the other one for Mulago did not have" (students).*
- *"It was not by mistake that content was not provided for Mulago staff, we thought the clinical mentors have been training these students before unlike Bombo where they are new and we needed to guide the mentorship" (Tutor).*

In a follow up interview with a medical staff working in Accident &Emergency the researcher observed that there is willingness by non-Orthopaedic staff to train OPM students. This was displayed in the activities where Orthopaedic students worked together with nurses and intern doctors. During the interview with the clinical staff one argued that; *"these student are good and helpful but we don't know what they cover in the training program"* (clinical mentor).This implied that whereas the Orthopaedic officers mentoring students are knowledgeable about the scope of training, they do not teach students in isolation of other health workers. It is therefore important to avail relevant information to all members of the health team in contact with the students during placement. In a similar way engaging others helps to spread the load of training students among many healthcare experts though, accountability on how learning has been accomplished lies on the presiding clinical mentors.

Regarding the involvement of students in coordinating practical activities, 64% of the participants strongly agreed, 23% agreed while 13% disagreed with this idea. Student involvement implied having a

student leader in every placement unit who would act as the focal person for the school. According to the 13% of the participants, who disagreed, their group leader did not express any leadership role. This implied that the group leaders were not oriented to the coordinating roles they had to perform prior to the placement. However, despite the disagreement of some few students regarding student leadership in separate interviews conducted with seven groups (26/38) students agreed to have had a leader who was chosen by the school. This was a new innovation that had not been done before. The leadership roles of the student included: - linking students with clinical mentors and the school, ensuring discipline among students, time keeping, welfare, giving accountability of tasks given by mentors and ensuring that students are supported during placement.

On the other hand, mentors commended that the presence of student leaders during the clinical placement eased their work. According to one of the mentor, there was good accountability and few cases of indiscipline this time compared to the previous years. When the students got involved in coordinating the learning activities they gained sense of ownership and responsibility which in turn motivated them to learn. The involvement drove them into searching for learning opportunities, increased enthusiasm and reduced on absenteeism. Absenteeism could be linked to lack of interest and poor attitude towards learning which in turn results in poor acquisition of skills during placement. In line with improving coordination between mentors and students, the researcher conducted small group interviews with students from the placement units. The responses are presented in the table below.

Table 2: Interview responses to evaluate improvement in coordination

Question	Responses from students
How did you get the learning tasks assigned?	• We go through the ward every morning and identify cases that need our attention. Then seek guidance from the officers on how to proceed with procedures. • Report to the mentor when we have found out which patients have complaints. Ask if we can carry out any intervention. • The mentor tells us to take her through the cases identified before assigning us tasks. • Sometimes tasks are prescribed by the doctors and ask us to implement. • At times we find a generated list of tasks to be done by the doctor on call.

The responses presented in Table 2 above indicated the interwoven nature of activities done by the different players interfacing during clinical work. The doctors, Orthopaedic officers and students are all linked to the patient who is the center of treatment and learning for the students. Therefore it's imperative for the students to tap on the expertise of all health care team serving the same patient.

4.2.2: Supervision and promoting practical skills acquisition.

Supervision of students during practicum is another aspect that received consideration during the implementation stage. Like coordination, the following aspects that were considered during implementation were subjected to evaluation namely; Professional ethics observed, Respectful interpersonal relationship between students and officers, Tutors support students in placement units, Tutors participate in activities of the practicum units, Clinical mentors are supportive during placement, Students' logbooks signed by mentor daily. The findings of these different aspects are displayed in the table.

Table 3: Evaluation of supervision activities implemented to promote practical training

Strategy	**Response**				
	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**	**Total**
• Professional ethics observed	2**(11%)**	15**(83%)**	1**(6%)**	0	**18**
• Respectful interpersonal relationship between students and officers	3(16%)	14(78)	1(6%)	0	**18**
• Tutors support students in placement units	12**(67%)**	6(33%)	0	0	**18**
• Tutors participate in activities of the practicum units	6**(35%)**	10**(59%)**	1**(6%)**	0	**17**
• Clinical mentors are supportive during placement	18**(100%)**	0	0	0	**18**
• Students' logbooks signed by mentor daily	6**(33%)**	10**(56%)**	2**(11%)**	0	**18**

(Source: primary Data)

During the evaluation workshop, all stakeholders (100%) strongly agreed that clinical mentors provided support to the students during placement. Similarly 67% strongly agreed that tutors supported students during practicum and 33% agreed. The variation between strongly agree and agree arose from the fact that placement was conducted from 2 different environments in which one hospital (Bombo) had full support of tutors while Mulago was majorly supported by clinical mentors. Bombo hospital is one of the

new practicum centers for OPM School. The staffs at the center have not had training in mentoring students and as a result the Hospital Management and School Administration agreed to send tutors to this clinical placement area in order to strengthen the supervision/ mentoring process. However this strategy raised ethical issues as to why tutors needed to support students on practicum yet they are not full employees of the teaching hospitals.

Another issue that was addressed was to ensure that both the students and health care providers who mentor the students observed a professional code of conduct. In line with the observation of professional ethics by hospital staff and students, 94% of the participants agreed that during the last placement a respectful interpersonal relationship existed in the practicum units. Only one participant disagreed that ethical behaviour was observed to the desired level. This participant pointed out that some nurses in Accident and Emergency department were behaving contrary to the medical ethics using abusive and disrespectful language. This unethical conduct was cited to have affected the students' zeal towards participating in the procedures which they should have learnt.

Regarding signing of students' logbook on a daily basis upon completing tasks, 33% strongly agreed and 56% merely agreed representing 89% participants, while 11% totally disagreed that they ever signed logbooks during the clinical rotation. The difference in the level of agreement came from the time students presented the log books for signing. For those who agreed reported signing logbooks for occasionally to acknowledge work completed in some cases after 2 or 3days not on daily basis. This was confirmed by the report from the Nurse in charge of Accident and Emergency who reported that the students sent to her unit did not possess logbooks. Information gathered from an interview with students placed in accident and emergence department confirmed that their log books had been fully filled up prior to the rotation and there were no space left to record more tasks performed. It is important to note that a logbook serves the purpose of monitoring the learning process through documenting what tasks the student has accomplished and how.

It is further worth noting that the informative value in the logbook is subject to the mentor-student relationship and the ability of the mentor to perform an objective appraisal before signing off the student. Though the students had no log books to monitor their learning, the mentor reported that they were very active and took part in many procedures willingly. The enthusiasm displayed was attributed to the orientation students underwent and the involvement in the coordination processes. Additional information on supervision was collected during interviews using an interview guide and the responses are displayed in Table 4.

Table 4: Responses from interviews regarding evaluation of placement activities

Question	Response
i. What role do you have in the unit activities?	• Our role is to take part in the ward activities and learn as we work, through observing, assisting, and also perform procedures under observation of the senior people (students).
ii. How were you assigned a mentor /supervisor?	• Before going to the ward the coordinator of clinical placement gave us a letter to take to the in charge who assumed responsibility after reading the letter. Since then he has been taking us through all activities (students)
iii. Which form of support did you receive from the mentors?	• They have been helpful and supportive academically through case discussion(students) • Hands on skills like how to perform procedures(immobilization of fractured limbs) (successfully under limited resource setting***("orthopaedic common sense")(student)*** • Guidance in academic and life after school like handling difficult staff members. • There is one officer who usually encourages / motivates us during procedures even if things seem to be failing.
iv. Before executing the tasks assigned to you how do you know what is required?	• We (Students) are given chance to suggest the approaches we have been taught in class towards solving a particular problem. • When the proposed approach is right, the mentor flags us to implement it. • Where there are doubts and mistakes correct us and initiates a discussion before the treatment plan is adopted.

(Source: primary data)

4.2.3 Motivation and promoting practical skill acquisition

The third function of administration that stakeholders implemented in this study was motivation. During a stakeholders meeting the following aspects of motivation as regards to skill acquisition in OPM school were evaluated;- Clinical mentors observe time for lunch, pre-practical placement briefing, facilitation of clinical mentors, conduct post-placement assessment exam, students allowed to do procedures, mentors appraise students during practical sessions. The results are displayed in Table 5.

Table 5: Evaluation of Motivation activities implemented to promote practical training

Strategy	Percentage distribution Response				
	Strongly Agree	**Agree**	**Disagree**	**Strongly disagree**	**Total**
1. Clinical mentors respect time for lunch	9(**50%**)	6(**33%**)	3(**17%**)	0	**18**
2. Briefing of students prior to practical placement done	9(**75%**)	3(**25%**)	0	0	**12**
3. Officers who supervise students in practicum units are facilitate	6(**67%**)	2(**22%**)	1(11)	0	**9**
4. At the end of every placement assessment exam conducted and marks awarded by both tutors/clinical mentors	17(**94%**)	1(**6%**)	0	0	**18**
5. Allowed students to participate during procedures	15(**83%**)	3(**17%**)	0	0	**18**
6. Students freely discuss cases with mentors during placement	14(**78%**)	4(**22%**)	0	0	**18**

(Source: primary data)

According to the results in the table above it was noted that overall motivation strategies were fully implemented. Stakeholders agreed that;- briefing of students prior to practical placement was 100%; administering clinical assessment to students at the end of the rotation accounted for 100%; allowing students to participate in the procedures was 100%; and 100% for students freely discussing cases with their mentors.

The activity of clinical mentors respecting time for lunch, 88% of the participants agreed that it's done. This implied that to a greater extent students were allowed to go for a lunch break and all non-emergency procedure could be halted to enable them get lunch and return to participate in the procedures. However 17% accounting for 3 participants who disagreed that lunch time is observed. These participants said that it's very hard to allow students to go for lunch and leave a procedure partly done. They further pointed out that stopping a clinical procedure midway for a lunch break contravenes the principle of patient first before self. Most medical procedure elicit pain to the patient and in most cases warrant using medications that change the physiological state therefore postponement is inhuman and possess great danger to patients' life. Viewing it from the learning perspective, lunch is not fixed and has no far reaching implication if served at a later time.

On the contrary postponing a procedure for instance resuscitation might result in loss of life, a reduced fractured limb will not stay without a cast to keep it in place and so on. The key issue on this parameter is having students understand the price of every action/ decision they make whether it benefits the patient under their care or not. Therefore whether clinical mentors allow students to go for lunch break presents an ethical dilemma that has to be solved by both stakeholders. Never the less lunch break is an important aspect of training in which students get refreshed and energized to handle more procedures in the afternoon hours.

The other aspect measured was whether clinical mentors are facilitated. While 19 participants were present in the meeting, this aspect was evaluated by only tutors and officers/ clinical mentors. Results showed that 8/9 (89%) agreed that officers who support students during practicum training are facilitated, and only 1 of the 9 participants disagreed. The participant who disagreed reported that he was not aware of the facilitation extended to the officers although he participates in the training exercise. It was observed by the members in the meeting that there could have been a communication gap. Inadequate communication between the Principal tutors' office and clinical mentors was highlighted as a barrier to smooth training of students during practicum. One of the stakeholder noted that the facilitation given is indirect to avoid Officers tagged monetary value to the training. Mentors rather received an incentive through assessing the students' level of competence and rate their effort to the outcome of the learning process.

4.3: Practical skills acquisition

This section presents data on how students acquired skills during practicum placement following the improvement in administrative functions. The first part of this section presents methods of learning employed by students while on practicum and responses given about the experience gained. The second part presents results of clinical assessment examination administered to evaluate the level of competence acquired from the practical encounter.

4.3.1: Methods of skills acquisition during placement

The placement period was organized in form of block training where the students went to clinical units for 7hours per day for a period of 4weeks. During this training block, students acquired skills through the following highlighted methods:-

- **Observing clinical worker and mentors** as they carry out their work, ask questions relating to the practice without direct involvement in the treatment procedures. Observation is a common method of learning in the medical field as it helps the students to reflect on the basic science (for example anatomy, physiology & pathologies) and in this method, they appreciate the clinical

presentation of disease. With this method students gained skills of conducting patient assessment (clerkship) and learnt how to relate with the patient's environment (infection control) before actual handling of patients.

- **Assisting an experienced health/medical worker**- this method allows the student get closer to the task being performed by the medical expert and only takes on the role of a helper as the master works. Assisting in other wards is an entry point to the medical practice in which the students get a feeling of the real clinical work as they work alongside the master. Orthopaedics practice is labor-intensive that requires more than just a single pair of hands. This provides room for the students to take on the role of assistant as they actively observe how the expert does the maneuvers. When this is done repeatedly, the students assimilate some practical skills and they are able to predict to the master what is required for the succeeding step.
- **Learning by being assisted**;-at this level it is expected that the students should have gained some basic concepts of the practice and therefore they are able to lay down a treatment plan depending on the complexity of the problem. At this level they should have acquired knowledge and some practical skill that can enable them to perform tasks with assistance from the supervisor. At this stage the students should have developed more confidence and are willing to learn from their mistakes (try and error). This is a common practice in medical training although if not done cautiously it has far reaching complications. However with this kind of learning, the mentor bears the responsibility for the errors committed. The mentor further directs the student on how to position their hands and which tool to use until the heart, head and hands develop perfect coordination. This phase usually takes more time than the assisting and observation stages.
- **Doing the tasks;** doing as a process of learning implies that the student has generated enough knowledge and skills in making assessment, diagnosis and is capable of suggesting a treatment plan to an expert in the field. At this point students are able to give reasons for their choice of treatment made based on the theoretical knowledge and demonstrate the capability of accomplishing the required procedure. According to the practicing Orthopaedic officers and tutors, a final year student is expected to have developed clinical competence in most of the common Orthopaedic conditions/ diseases and implement treatment with minimal support. It was further pointed out that the role of the mentor is to ensure that the procedure being done conforms to the acceptable standard and that the patient does not suffer harm as a result of treatment. In a nutshell **'doing'** can be referred to as the maturation stage of practical training in OPM.

During implementation, students were monitored to see how training was executed. Through interview and observations from practicum units, students and clinical mentors were cross examined. The results of the interviews are tabulated in relation to the different aspects of the learning methods.

Table 6: Mode of skills acquisition during practical training and areas of competence

Key practical Areas of competence	Observation (%)	Assisting (%)	Assisted (%)	Doing (%)
Resuscitation	20	50	25	5
Patient assessment	5	25	40	30
Fracture treatment	10	20	30	40
Casting	5	10	15	70
Tractions	0	15	40	45
Wound care	0	10	30	60
Prescription	25	0	75	0
Clubfoot treatment	0	30	50	20
Assisting in major surgery	40	50	10	0
Recovery	5	15	35	45

(Source: primary data)

The analysis displayed in the table above indicates that most students learnt practical skills through being assisted and by working under supervision. Prescribing investigations and medication was the most assisted procedure with 75%, followed by clubfoot treatment with 50% and tractions with40%. The procedure that was most performed by students with minimal/or no assistance from mentors included;- casting 70%, followed by wound care 60%, while prescription and assisting in major operation students barely worked by themselves.

For the procedures where students were able to do with minimal support are those in which they have had hands on before and can be practiced from the skills lab. While those procedure which require high degree of precision due to their level of risk were not allowed to done by students on their own. Twenty two (22) participants accounting for 65% reported that they had done wound care almost on a daily basis and could confidently care for the different types of wounds without any challenges. Wounds are a common condition in Orthopaedic due to high energy trauma resulting in either traumatic or surgical wounds. Orthopaedic officers more often interface with patients with traumatic wounds and as such

provide the required treatment. The final year students were therefore expected to have had adequate participation in wound care at a level of 100%. Only 35% of the students had been placed in theatre where no wound care was done however they reported having had subsequent experiences prior to this rotation. Furthermore, the students reported that though they participated in surgical operations in theatres, they had no opportunity to close surgical incisions. However, mentors underscored the need for reducing chances of contamination during major surgeries as pointed out by one of the stakeholders. *"Yes, it's true they have not been left to close wounds in theatre for fear of contamination, in surgery there is no room for mistakes especially when it can be avoided (reported by one of the clinical mentor)."*

4.3.2: Measurement of skills acquisition

The purpose of this project was to promote practical skill acquisition in OPM School, the outcome of this was further measured through comparing the results of clinical assessment exams done before administering the interventions and after. Semester one clinical assessment scores were considered to be the before intervention marks. In the ideal situation where time is not a limiting factor, the implementation process would be done over a period and assessed periodically to see the desired changes. However, due to time constraints this study was able to evaluate skills acquisition during the practical training using the end of rotation clinical examination. Clinical assessment was scored out of 50 marks. The results of this assessment were compared with those of semester one academic year 2016-17 for the same group of students as shown in figure 2.

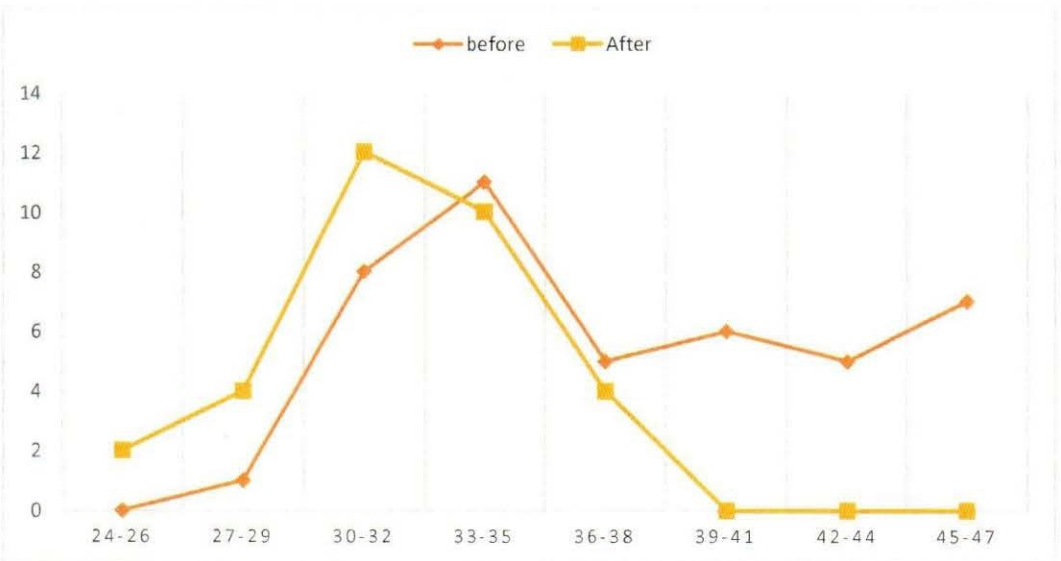

Figure 2: shows performance of 3rd year class in clinical assessment examination

(Source: secondary data)

From the figure (2) above, data analysis shows that before the intervention of this study, majority of the students (31%) scored in the range of (33-35) marks; followed by 22.2% who scored (30-32) marks while the 19.4% of the class scored in the range of (45-47). The average mark in clinical assessment during semester one was 37.5 and the modal mark was 37. After the implementation 40% of students scored in the range of (30-32) marks; 33.3% scored between (33-35) marks; while only 13.3% scored in the range of (36-38) marks. However there was a considerable number of students (20%) who score below the (30-32) mark point. The average mark for second semester clinical assessment was 32 while the modal score was 31 below the average mark of semester one by 5points. (Does this imply that implementation of administrative strategies worsened practical skills acquisition? At this point the answer is no)

Owing to the improvements in administrative functions, there were changes that took place in the way clinical assessment/ examinations were conducted during the semester of implementation. Strategy four of the motivation function was to ensure that clinical assessment exams are conducted by both tutors/clinical mentors at the end of the practical training period. This is a new strategy that had not been embraced before, implying that a more objective assessment was done and marks awarded based on an average of the two assessors. Another aspect that was introduced in the assessment was to assess each student on 3 different cases and a total mark given on the overall performance. This is contrary to what was assessed in the past where each student was examined on one case and performance judged on that aspect only.

Responses from small groups' interview indicate that majority (68%) of the students the researcher interacted with were impressed with the method of assessment. They reported that the examination was well organized not like before. We were informed a week before the assessment day and briefing was done, this is a very new approach. This time assessment was not limited to only clerking a long case at least but introduced short cases like at medical school. Even the examiners were friendlier than when only tutors examined. It also was hard to spot a case, you needed to have good knowledge of all cases which demanded that a student had participated fully in the clinical placement. Those who had not seen some of the cases it was hard for them to pass. Still in line with the assessment, one mentors commented that this was the best way to sieve out those who have been dodging procedures. It is a standard assessment procedure used by health training institutions to objectively ascertain the level of competences among trainees.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0: Introduction

This chapter presents the discussion of findings based on the themes adopted by the stakeholders to guide the improvement of practical skill acquisition in relation to the findings of the evaluation process. It also presents a summary the key findings, draws conclusions from the findings and the recommendations that will lead to further improvement in the training of practical skills. The purpose of this research was to improve administrative functions and promote practical skill acquisition in the school of Orthopaedic Medicine-Mulago. This theme was implemented and evaluated under three subthemes namely; i) Improving Coordination, ii) Improving Supervision and iii) Motivation.

5.1 Summary of key findings

The findings of this study are based on collaborative research approach and this section provides an overview of the key findings. During the study it was found out that coordination of school activities through harmonization of school time-tables, regular meetings with teaching as well as clinical staff and students promoted effective communication. It was further discovered that improving supervision of students during clinical placement by appointing motivated clinical mentors; empowering of students by allowing them to actively participate in clinical procedures; continuous assessment coupled with jointly summative clinical examination resulted in a high level of student-mentor contact time and improvement in practical skills acquisition. In the same way motivation was found to be a bonding element between coordination and supervision rather than a standalone.

5.2Discussion of research findings

The discussion followed the findings in accordance to major themes that emerged during the study. Each theme is discussed and supported with examples from the actual data and how it relates with scholarly literature. The major themes were improving: - coordination, supervision and motivation.

5.3Improving Coordination

The study assessed how coordination promotes practical skills learning in accordance with the activities that were implemented by stakeholders. Improving coordination was one of the objectives stakeholders envisaged to promote practical skill acquisition in OPM School. According to Isac, Voichita, & Guta, (2009), coordination is achieved by synchronizing the actions of managers, and the decisions taken at various hierarchical levels. Relatedly, SIGMA (2009) affirms that coordination is an interactive process, and the best results are achieved when it is seen as a common search for optimal solutions through

openness, sharing information, and cooperation rather than through applying authority and control. The findings of this study are in agreement with the above assertions. This was noted during the evaluation workshop where stakeholders reported that following effective communication and orientation of stakeholders, the program time-tables were harmonized. Stakeholders confirmed that the implementation of coordination activities promoted a cordial work relationship that encouraged students and clinical mentors to work together during clinical placement. This in turn helped students to acquire practical skills by working together with clinical mentors during patient care.

5.3.1 Harmonization of the time-table

Time-tables that are incompatible with the different activities of the teaching staff were cited as key impediments to proper practical skill acquisition. According to Isac, Voichita, & Guta, (2009), where an organization is faced with internal threats, management is required to harmonize the conduct and actions of employees organized in informal groups. Related to the above assertion, the situation analysis conducted at the OPM School was faced with uncoordinated teaching activities as a result of clashing time-tables which affected practical training. The study discovered however, that following harmonization of the time-table students spent longer hours in the practicum units than before. This helped to improve students' attendance and availability in the clinical placement units as a result they participated fully in the clinical procedures. This indicated that there was a need to be flexible and involve all stakeholders during the planning stage to agree on the most suitable times for everyone. These findings are supported by Blackesley, Murray, Wolf, & Murray, (1998) who argue that careful attention to curricular requirements and the relationship between the times courses are taught is essential in avoiding potential conflicts. In the context of this study poor scheduling of courses in the available semester time had resulted in conflicts between part-time tutors and clinical mentors. Likewise in circumstances where an institution is largely depending on part-time staff, it is important to make full use of the available time to ensure that students gain maximum benefit from both theory and practical courses. To achieve maximum benefits, school management should at all times engage its partners in organizing the available resources. The harmonized process ensures that the students get equipped with sufficient skills required from the world of work and classroom as well as co-curricular activities.

5.3.2 Effective communication

Poor practical skill development among Orthopaedic students was attributed to the dis-jointed linkage between the teaching staff, students and clinical mentors in the placement areas. Studies have shown that adequate communication among educators and students can foster the development of the collaboration (Espinet & Zachariou, 2014). This study discovered that through joint periodic

stakeholders' meetings, clinical placement activities were streamlined and as a result students' participation in practical activities improved. There seems to be harmony between these findings and Bobbi Schroeppel proclamation that, "if you want to achieve anything, you need to reach out to the people... Tell them what you're doing, listen to what they need and adjust your goals as necessary," (Project Management Institute Inc. 2013). According to the researcher's view there was effective communication that led to the interaction between the school administration and clinical mentors, which motivated them towards owning up the training and assessment of Orthopaedic students. Presumably, the quest for training competent Orthopaedic officers warranted the key players to collaborate and nurture skills development through communication. For instance clinical mentors suggested that the clinical placement circulars should be accompanied with a list of course content covered in class. From the evaluation meeting, a clinical mentor from the trauma section affirmed, "I now understand clearly what to expect of the students in terms of abilities based on what they have covered from class". On the basis of the above response, tension existed between students and mentors as a result of unclear expectations which was later solved through the stakeholder meetings. The observation is true according to Arsovski & Nikezic, (2012), who agree that successful implementation of change requires teamwork in order to successfully integrate different skills, experiences and abilities.

Another key activity that was commended for harnessing practical learning was regular meetings. Meetings between students and clinical staff before and after clinical procedures, as well as general stakeholders meetings were found useful. It was further noted that stakeholders developed clear objectives that cultivated a positive working relationship. The positive work relationship motivated the clinical mentors to support students in the clinical learning encounters. The findings have a direct bearing to Wahed, (2012 pg41) who noted that communication depends on social interaction and direct dialogues. The dialogue created by meetings between students and clinical mentors helped them to appreciate one another's role in the learning process which eased the tension that had existed earlier on. It is further re-enforced by Howard (2014 pg6) who stressed that the main forms of communication used in higher education tend to be; email, phone conversations, person to person, and written documents. He further stresses that person-person is the most effective way to communicate, but does not highlight how this should be done. Findings from this study showed that the main medium of communication in OPM School was by circulars and SMS. Experience shows that a good number of people do rarely read notices from notice boards. Furthermore in communities where the reading culture is poor and unreliable internet connectivity, notices and emails do not serve the purpose to which they are intended unless followed with telephone reminders. This study discovered that regular stakeholders' meetings

were the most effective form of communication that fostered direct dialogue and resulted in team building.

Another incidence where meetings were found effective was in conflict resolution. A typical case was at one of the meetings where one of the students reported that his practice group had been barred from the placement by the nurse in-charge. According to this student, he thought that the nurse in-charge had had a negative attitude about his group, but on being guided he later discovered that this was not the case. "We thought the nurse had negative feelings about us, but we had merely misunderstood her" said the student, while in another case situation, another student appreciated the learning experience and he reported that; "We have had the best learning experience from this rotation, the group leader remarked". This pronouncement in line with John Dewey (1859-1952) argument, conflict is a "sine qua non" of reflection and ingenuity (Verma, 1998). It is apparent that dialogues between students, nurses and clinical coordinator provided an opportunity that ensured practical learning. The importance of a meeting in this conflict was to avail stakeholders a voice, listen to what they have to say and get prepared to act or react accordingly. Therefore meaningful interaction between students and clinical mentors was a precursor to effective practical learning.

5.4 Improving supervision

Practical placement in health training provides opportunities for the students to work in real life situations under supervision. Supervision includes various aspects of support to the student during clinical placement (Mari, Wolff and Skaalvik, 2010). The purpose of supervision is to improve the quality of students' skills and enable them to achieve the agreed objectives and outcomes (Rowe & Haywood, 2007). This study considered supervision of students as another aspect of administration that influence practical skill acquisition. Watson-Miller, (2015) pointed out that clinical supervision is an important component of health practice and consequently, of interest to health-educators. In this study a student reported that, "with help of the supervisor I have developed the ability to immobilize fractured limbs successfully under limited resource setting", which is in support of Watson-Miller's assertion.

From this study it was observed that improving clinical supervision brought about a supportive working relationship between clinical mentors, hospital staff at the practicum units and students. The researcher has noticed that during clinical placement, the mentor assumed the role of "a mother eagle" instructing its eaglets to fly from its wings. An example of such experience was given by a student during evaluation as she said that, "one of the officers was an encouragement, he inspired us during the clinical procedures even if things seemed to be failing, could not allow you to give-up". The positive relationship enabled students to reflect on the theory they had learnt from classroom as well as simulations and translate this knowledge into real life experiences.

Conversely, theory lectures coupled with simulated situations form a basis onto which clinical placement is anchored. Introducing students to medical concepts through illustrations, brain storming, quizzes and visual materials, helped them to predict what the practical experience would look like but did not make them skillful. This interpretation matches with the McGill and Warner Weis statement that "the process whereby people engage in direct encounter, then purposefully reflect upon, validate, transform, give personal meaning to and seek to integrate their different ways of knowing", (Allodola, 2014). Turning to Kolb's learning cycle cited by Sternberg & Zhang, (2000), supervision during clinical placement ushered students into the Watching, Thinking and Doing phases of learning. However, availing them practical exposure under effective mentorship in a hospital setting opened up future prospects of their professional career as competent health service providers. There is a relationship between our findings and Morgan, (2006) saying that placements offers students the potential opportunities to make connections between theory and practice in the workplace, facilitating the transition from student to competent graduate.

Experience has showed that most students do not appreciate theoretical concepts by attending a lecture or reading a textbook, until they observe or experience something tangible. Students who are inclined to science grasp concepts better through observing experiments and practicing what they observe so do medical students. In order to introduce the concept of "learning by doing", Orthopaedic students were assigned to nine clinical units for a period of 4weeks with the aim of integrating theory into practice. The concept of working by doing helped students to generate answers to complex situations that looked abstract during theory lessons. For example students practicing from the emergency theatre reported that working alongside the surgeons during operation, they were able to appreciate the suturing techniques they had learnt in theory as one of the students reported in the excerpt below;

> "I was asked to close the wound after ORIF using vertical mattress suture which I had never practiced before this placement. During my first attempt I only managed to put 2stitches because when I tried to knot the stitch would get out and I repeated the procedure several times before I finally succeeded," (response from student).

Another student said, "I used to read about IM nailing and could not figure out how it's done, this time I assisted twice in the operation". The finding is supported by Katajavouri, Ylanne, & Hirvonene, (2006) who also reported that student placements in community pharmacies enabled them to link their university learnt knowledge to their workplace activities.

Prior to this study, stakeholders lamented poor student–mentor relationships as a result of indiscipline, lack of respect from clinical staff, failure of teaching staff to support students during placement. This

spiral of problems resulted in absenteeism of students, malpractices in which students carried out procedures without support from the clinical mentors. Learning without proper support from expert workers resulted into acquisition of faulty practical skills and thus incompetent Orthopaedic Officers. From the findings, following the implementation of the agreed activities there was improved and harmonious participation of students and clinical mentors during practical session. For instance students reported that during placement; - "We are given chance through discussion to suggest the best approaches we have been taught in theory towards solving a particular problem. When our suggestions are correct, mentors allow us to implement. Where there are faults they make correction and initiates a discussion before the new treatment plan is adopted." Similarly a mentor affirmed the students' assertion and reported that, students have been actively participating in all aspect of patient care by engaging in case presentation and discussion. He continued to say that unlike before, the students are disciplined, only took on a task after we have discussed the treatment plan. Likewise, during the evaluation meeting participants confirmed this remark when; 94% of them reported that experienced a respectful interpersonal relationship between students and officers. In the same way 100% respondents testified that clinical mentors were supportive during placement. This is suggestive that the positive interpersonal relations enabled students to work closely with clinical mentors during practical learning. The findings of this study affirmed what is recorded in the guideline by the Academic Quality Assurance Office, (2011) stipulating that both student(s) and mentor(s) must have an opportunity to meet and discuss the range of learning experiences. In the same way Rowe & Haywood, (2007) also observed that supervision should contribute to the development of a learning culture by promoting an approach that develops the confidence and competence. It was therefore noted that through an effective interaction between students and mentors during practical training students were able to translate theory into competence the required in the world of work.

5.5 Motivation

Scholars have noted that high motivation and engagement in learning have consistently been linked to reduced dropout rates and increased levels of student success (Brewster & Fager, 2000). In the same way, Bomia, et al., (1997) described student motivation as willingness, need, desire and compulsion to participate and be successful in a learning process. Poor student attendance coupled with poor practical skills in OPM School was one of the reasons why this study was done. Participants singled out demotivators that included; hunger, unethical conduct of clinical staff, lack of opportunity to participate in clinical procedures and unclear placement objectives. These factors spelt out represent the five 'key ingredients' impacting on student motivation by Williams & Williams, (2013). In order to improve

students' participation in practical training, stakeholders zeroed on motivation as an administrative function.

Educational Scholars view motivation in two aspects that is intrinsic and extrinsic (Kusurkar, Croiset, & Ten, 2011; Harmer, 1991; and Deci, Koestener, & Ryan, 2001). Accordingly this study emphasis was put on extrinsic factors of motivation that influenced practical training of Orthopaedic students as mentioned above. According to Kong, (2009) extrinsic motivation is an outward force in the form of expectation, praise and rewards that powers students in the learning process. The issues raised above form part of the extrinsic than intrinsic motivators of learning. Reflecting on the Kolb's cycle of learning, clinical learners are greatly affected by their learning environment at any stage of the cycle. This Implied that the poor practical skills observed prior to this study may be attributed to the clinical environment where students are sent for practicum.

The results from the study have provided evidence that practical training from a supportive clinical environment with collaborative clinical supervisors enabled students to acquire practical skills relevant to the world of work. The study further found a positive association between motivation and practical training during clinical placements. Students observed that for the first time during their placements clinical staff accorded them support and encouraged them during clinical procedures. For instance it was discovered that most students were given orientation in the clinical areas by the hospital staff. It was also discovered that the staff were helpful and friendly to the students allowing them to do the clinical procedures as they gave them guidance. Students reported that they felt confident because they were allowed to perform clinical procedures by themselves as the mentors closely observed. One student commented about the freedom she had with clinical staff to discuss cases during learning. "Our mentors provided a free discussion environment that helped us to build presentation skills during ward rounds" said the student. These pronouncements are supported by William, Ramani, Fraser, & Orlander, (2008) who assert that the value of positive interaction in relation to learning from clinicians and patients is likely to increase on the students' sense of accomplishment.

Although, majority of the students drew their inspirations from positive factors like supportive mentors, conducive mentor –student relationship, freedom to perform procedures, on the contrary two students reported having been inspired to learn by negative experiences. For instance a student placed in Accident &emergence department said;

> "My critical learning experience was when we lost a patient during resuscitation, all member of the emergency team did not notice that the oxygen tube had gotten out until the patient passed

> on. From that moment I learnt to be very observant to every detail during critical care, I don't want to lose patients with careless mistakes", (response from student K).

Similarly, another student reported a negative situation that resulted in a learning experience.

> "At first I thought the nurse was rude and felt I was in a wrong place but when I realized it was the nature of work that demanded such personality behaviour I embraced her and learnt a lot working together. I wish there was time to extend this placement, I have benefited more than before", (response from student P).

The above confessions seem to contradict McLean, (2004) who contends that witnessing of childbirth can make an indelible and rewarding imprint on students. According to McLean medical students were stimulated to learn when they had a reward, citing the experience they undergo a novices with hard work which is usually over demanding.

5. 6 Conclusion

In conclusion, the study revealed that the three administrative functions are interlinked and as such all must be implemented collectively to bring about meaningful improvement. Following the implementation of agreed activities, the study registered improvement in practical training which in turn resulted in improvement of skills acquisition. Improvement of coordination through effective stakeholders' communication and harmonization of the program time-table resulted in good attendance which improved participation of students in clinical procedures. The participatory approach used at all stages of the study was a great precursor to the achievements that were realized in practicum training of the Orthopaedic students. Through participatory methods stakeholders were able to unearth the causes of poor skills among graduates and identified workable objectives that resulted in improved coordination, supervision and motivation of the stakeholders and finally realization of practical skills acquisition by the students.

Similarly, effective supervision of students during clinical placement through, observing profession code of conduct, supportive mentor-mentee relation and positive clinical environment helped students to engage in professional discussions with mentors and actively participate in clinical procedures. Whereas studies on clinical supervision/mentorship recommend the use of student log-books as an important tool for documenting and monitoring students' progress, in this study logbooks were not used as an assessment tool. However clinical mentors and tutors jointly assessed clinical competences through a summative clinical exam. In order to receive feedback on the training program joint post assessment meeting were held.

Furthermore improvement of extrinsic motivation factors that is: - learning environment, instructor relations, ethical behaviour, and student participation in case management resulted in improved student attendance in placement units. The findings of improved motivation resulted in improved grades during clinical assessment as well as improved level of trust from the mentors. The positive motivating factors as reported in the literature played a bigger role, however this study discovered that there negative intrinsic motivators that should not be disregarded by educationists. All in all it can be concluded that adequate coordination of learning activities, supportive clinical supervision and improvement in extrinsic motivators of students resulted in practical skills acquisitions among OPM students.

5.7 Recommendations

The recommendations of this study are based on the gaps that were identified during the evaluation workshop of the study. The gaps that were evident were inadequate communication, lack of evidence based continuous assessment using logbooks, inadequate motivation of students through provision of protective wear.

- The principal tutor should ensure regular communication between school administration and the clinical staff through periodic meetings will bring about teamwork. Periodic stakeholder meetings will provide forum for coordinating clinical placement activities and should be held at least twice in a semester that is before placement for planning and after the practical examination to evaluate the learning process.
- Learning by doing helps students to transform theory into practice, it was noted that students who were able to perform clinical procedures learnt more as compared to their counterparts who merely observed. Students' safety was one the obstacles that impeded participation in clinical procedures. The researcher therefore suggests that the institution administration should motivate students to participate in clinical activities by providing safety and protective gear to safe guard them from infectious diseases.
- Experiential learning is progressive in nature that requires longer practical hours of interaction with learning objects. For sustainable improvement of practical skills development, final year students should spend 60% of their study time on clinical placement and 40% class. The researcher suggests that school administration should re-organize the curriculum to cover much of the theory courses during the first 2 years of the program and create more time for practical learning in the final year.
- Owing to the limitations encountered during the implementation of this study the researcher recommends that the institution managers facilitate further studies to cover a larger group of

students undertaking the Orthopaedic medicine program for a period of at least 2 semesters to ensure reproducibility of the results.

5.8 Study limitations

Although the study achieved its objectives, there were unforeseen factors encountered in the process which should be considered by future researchers that include; Structural changes at the training hospital due to ongoing re-construction that affected the smooth placement of students during clinical skills training. In the same way the training hospital experienced shortage of supplies and materials, this further affected the students' opportunities to participate in clinical procedures since most patients could not afford to buy their own. Lastly the time (4 weeks) for implementation was not enough for action related study. Owing to the cyclic nature of action research, more time (about 8weeks) was required to implement and evaluate the outcome for at least two cycles to enable the research increase the validity and reliability of the study findings.

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APPENDICES

APPENDIX IA, B, &C: SITUATION ANALYSIS

Appendix IA: Table of stakeholders involved in the situation analysis and issues raised

Stakeholder	Sample size/ method	Method	Issues raised
Tutors	4 -purposive	Focus group discussion	• Students are too many, • limited space for placement, • students don't attend clinical areas, • some clinical instructors are not supporting students on the wards
Students	12-purposive	2-focus group discussion	• some tutors don't teach practical, • hospital staff are abusive, • not allowed in hospital, • skills lab useless
Practitioner (from 8-hospitals)	24-purposive	Structured questionnaire	• Poor practical skills in patient resuscitation, • care for open injuries, • Poor prescriptions and patient follow-up.
Surgeons	1-purposive	Structured interview	• School detached from hospital, • surgeons are not involved, • numbers are too big, • No commitment between school and department.

(Primary data generated from the field; November –December 2016)

Appendix IB work process analysis

Work profile of a competent OO

Task	Resuscitation	Patient assessment	Investigation	Treatment implementation
Quality standards	**Urgency and proficiency**	**Privacy and accuracy**	**Effectiveness and accuracy**	**Effectiveness and efficiency**
Core duties	o Ensuring patent Air passage, breathing and proper circulation o Stopping bleeding Prevention/ treatment of shock o Reduction/ control of pain and suffering o Replacement of lost volumes	o Perform Quick lookup of other life threatening problems o Taking of disease histories necessary for diagnosis o Performing a thorough clinical examination o Prediction of most probable diagnosis	o Inform patient/caregiver of the need for investigation o Write request for appropriate test to be done on the patient o Ensure patient safety during investigation o Interpret results and make diagnosis	o Making treatment decisions o Prescribe appropriate treatment based on diagnosis o Perform treatment or refer for more specialized treatment o Monitor and evaluate treatment outcome o Make follow-up of patient after discharge
Competences	• Knowledge of anatomy, physiology and emergency medicine. • skills of handle critically injured/ ill patients from one point another • skills of treating shock • knowledge and skill to determine need for and administer fluids in shock • skill to detect worrying signs of acute system failure • crisis management	• Communication and listening skills • Empathy • observation skills • clinical assessment skills • knowledge of anatomy and physiology • knowledge of trauma and emergency medicine • writing and reporting skills • knowledge of differential diagnosis	• Knowledge of the disease/injury to be diagnosed • Knowledge of the anticipated outcome from the test requested • Writing skills • Knowledge of available equipment and time required to carry out the test • Interpretation skills to make diagnosis	• Communication and counselling skills • Knowledge of medicines and other procedures necessary in treatment • Surgical skills • Immobilization skills • Rehabilitation skills

Appendix IC: Analysis of teaching and learning processes

	Learning Area (subject)	Setting	Learning objectives	Content	Learning process	Assessment
Theory	Advanced trauma Care	lecture rooms and lab	Be able to receive and institute advanced trauma support in A&E dept. Referral of victims for advanced care	Multiple injured patient Head, neck, chest and long bone injury	Simulations Bedside learning Clinic attachment Ward round	Student Case presentation OSCE assessment FGD with mentors& students Survey questionnaire
Hands on	Resuscitation Wound care Application of Advanced splints External fixation of fractures Prescribing	Skills –lab and A&E dept. – Trauma ward	To develop skills required to handle critically injured patient Develop competences and be able to set up appropriate traction for treatment of fractures	ABC drills, Surgical toilet procedure, Traction procedure,	Resuscitation drills Triage Assisting during procedure Preparation of instrument Management of materials and attendants	OSCE&OSPE
GAPS	taught theory no control in hospital to ensure learning	No equipment for practical	Limited space in hospital for big number Tractions not used in hospital	ABC done in Casualty only Tractions simulated	Drills done only in year one Instruments are few	Assessment is not in real life but scenario

Introductory letter for the reasearcher to conduct a study at Mulago

File incoming.

KYAMBOGO UNIVERSITY

P. O. Box 1 Kyambogo, Phone: 041-285001/3 Fax: 041 220464
www.kyambogo.ac.ug
FACULTY OF VOCATIONAL STUDIES
DEPARTMENT OF ART & INDUSTRIAL DESIGN
MASTERS IN VOCATIONAL PEDAGOGY PROGRAMME

Permission is granted for Mr. Musoke Henry to conduct research in the School of ...

29th September, 2016

THE PRINCIPAL
MAKMCS - MULAGO

RE: INTRODUCTION OF MUSOKE HENRY

This comes to introduce to you **MUSOKE Henry** a student of Masters in Vocational Pedagogy (MVP) Programme at Kyambogo University. This student bears registration no. 15/U/14582/GMVP/PE and in his final year. As a requirement for graduation, this student is expected to carry out Action Research through a collaborative process with World of Work.

Any support rendered to him is highly appreciated.

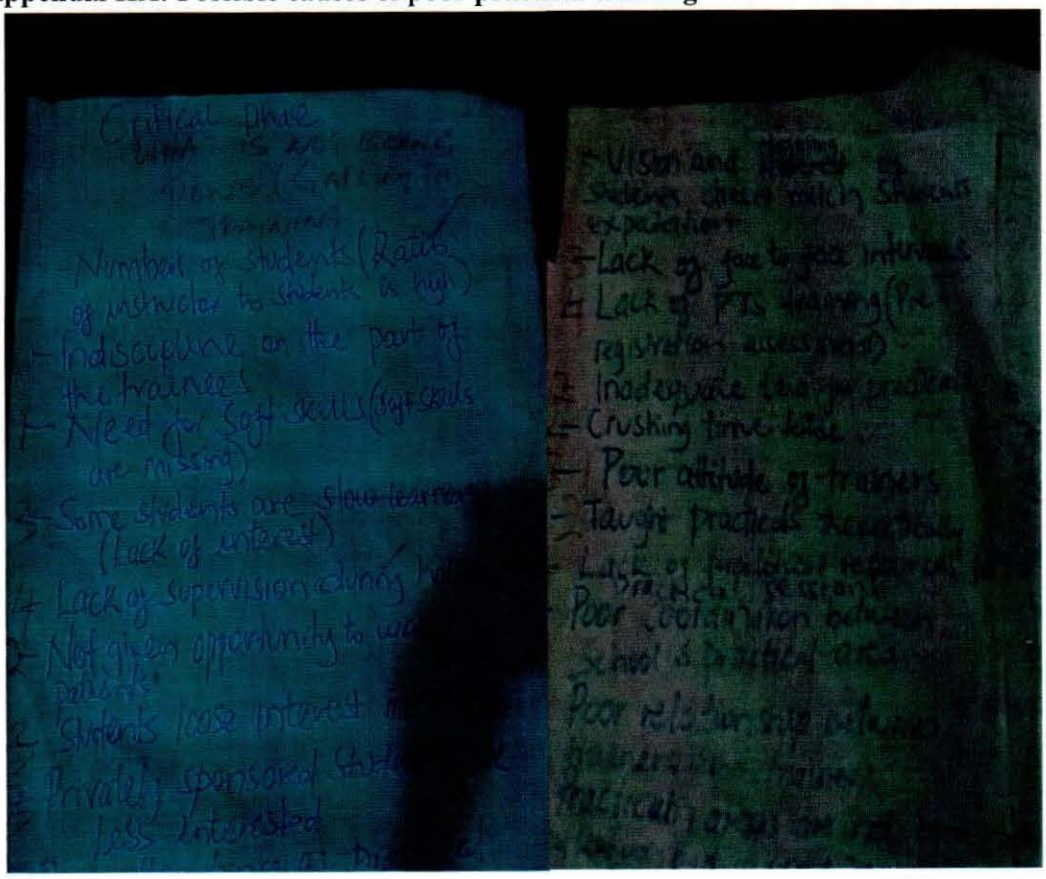
Looking forward to your usual support.

Yours Sincerely,

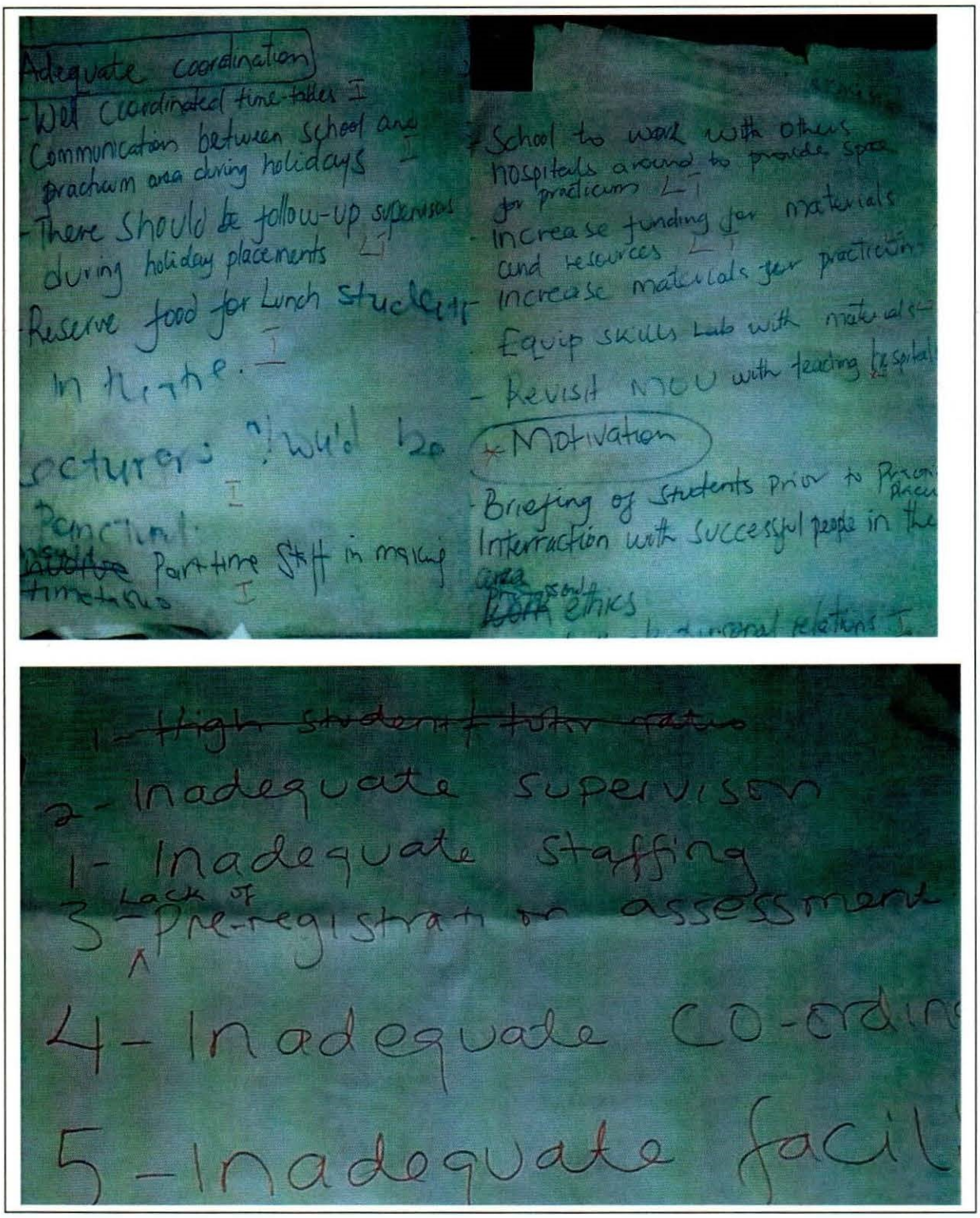
Chris Serwanika
Project Coordinator, NORHED MVP Program
Masters in Vocational Pedagogy Program

APPENDIX II RESULTS OF THE FUTURES WORKSHOP

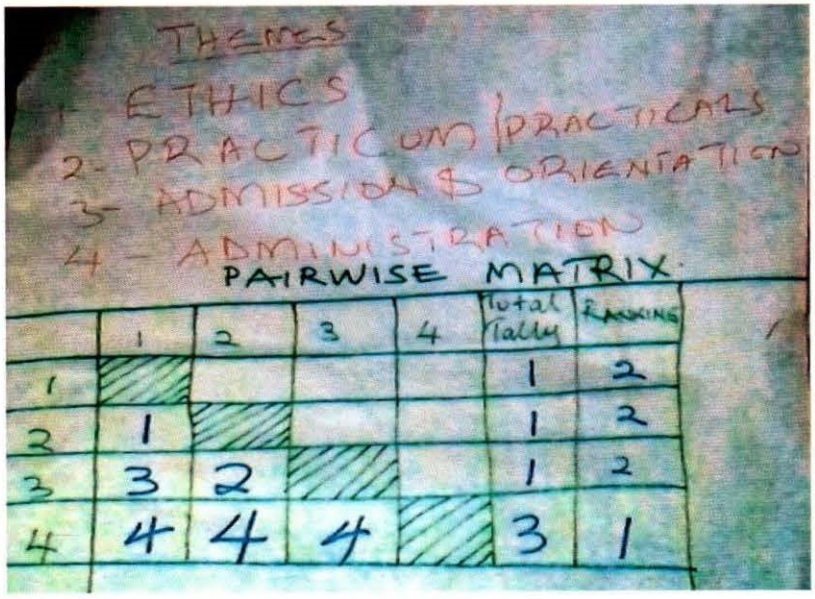
Appendix IIA: Possible causes of poor practical training



Appendix IIC: Clustering of Administrative Gaps (Reality Phase)



Appendix IIB: Pair wise Ranking For Selection Of The Critical Problem



APPENDIX IIC: Stakeholders during futures workshop at Mulago Uganda Institute of Allied Health and Management Science

Future workshop meeting on 12th/Dec/2016

APPENDIX IIIA&B: RESEARCH TOOLS

A: INTERVIEW GUIDE TO ASSESS THE IMPLEMENTATION OF THE ADMINISTRATIVE FUNCTIONS DURING CLINICAL PLACEMENT

Section A: Adequate coordination

Students

i. How many students are you in this unit?
ii. Who is your group leader?
iii. How was the leader selected/ chosen?
iv. What roles does the group leader play during this rotation?
v. What is the reporting mechanism between the unit and school about your learning activities?
vi. In case of uncertainty who do you communicate to and how?
vii. During this practicum you learn by doing, can you talk about how tasks are assigned?

Mentor /supervisor

viii. How did you get these learners assigned to this unit?
ix. What is the link between your unit and the training school?
x. Is there any form of accountability required?

Section B: Adequate Supervision

v. What role do you have in the unit activities?
vi. Were you assigned a mentor /supervisor?
vii. Which form of support do you receive?
viii. Before executing the tasks assigned to you how do you know what is required?
ix. Do you receive comments about the task accomplished?
x. Professional ethics (what is your comment about the conduct of senior people in the unit?)
xi. Respectful interpersonal relations (what is the relationship of the OOs in the unit and other health workers?)
xii. Lecturers should be practical oriented (what role do lecturers/tutors play in the teaching of practical in the placement units)

Mentor/ supervisor

i. How do your learners get involved in the activities of this unit?
ii. Who would you rate the abilities of your learners?
iii. Which aspects of the program have they showed mastery?

Section C: Motivation

i. Did you receive briefing prior to practicum placement?
ii. What is you impression about your placement unit?
iii. What is your comment about materials and equipment? (consumables, tools, and safety)
iv. What have been your best learning moments in this unit?
v. Point out the weakness encountered in this unit that have affected your ability to learn.
vi. Refreshment and privacy

Mentor /supervisor(s)

i. How do you comment on the learners' attitude in general terms from the time they joined your unit?
ii. What do you have to say about time management?

B: OBSERVATION CHECK LIST THAT WAS USED DURING IMPLEMENTATION PHASE

Clinical placement unit.....

Date of assessment .....

Dimension	**Observed**	**Not observed**	**Comment**
Students allocation Rota displayed in the unit			
Students attending clinical placement			
Students signed attendance register			
Students engage in clinical activities			
Mentors interact with students during procedures			
Mood in clinical area encourages learning			
Record of procedures taken			
Supervisor give feedback after procedure			

.....

Clinical placement unit.....

Date of assessment .....

Dimension	**Observed**	**Not observed**	**Comment**
Students allocation Rota displayed in the unit			
Students attending clinical placement			
Students signed attendance register			
Students engage in clinical activities			
Mentors interact with students during procedures			
Mood in clinical area encourages learning			
Record of procedures taken			
Supervisor give feedback after procedure			

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Website: www.uiahms.ac.ug

IN ANY ON CORRESPONDENCE ON
THIS SUBJECT PLEASE QUOTE:

SCHOOL OF ORTHOPAEDIC MEDICINE

22nd May 2017

Dear Mr. / Mrs. / Dr.....

Re: **INVITATION FOR EVALUATION MEETING**

You are kindly inverted to participate in a stakeholders meeting scheduled to take place on 2nd May 2017 in the board room starting at 1:30 pm.

The purpose of the meeting is to evaluate the just completed implementation phase of the activities we set during our 1st workshop last December with the aim of improving administration functions to promote practical skills acquisition in OPM School.

Your participation is paramount to the improvement of competences among Orthopaedic Officers.

Please keep time.

Yours,

Musoke Henry

Part-time Tutor/ Researcher

APPENDIXIV: TOOLS USED IN IMPLEMENTING STRATEGIES FOR IMPROVING PRACTICAL TEACHING

Table A: Activities of Coordination implemented

ADEQUATE COORDINATION				
TASK	**Responsible officer**	**Resources**	**Indicators**	**Measurement**
Write letters to practicum area before placement	Clinical coordinator &	Stationary, and computer	1. Number of student issued with letters 2. student allocation list	Focus group discussion Letter distribution list
Deliver letters to placement areas	Students	Nil	1. Copy of acknowledgement	Observation
Content covered by the student during school included in the cover letter	Clinical coordinator	Curriculum and schemes of work	1. Attachment of courses covered	Structured interview
Regularly communicate with placement area on student progress	Clinical coordinator & principal tutor	Student placement list and Airtime	1. Number of Supervisors called 2. comments noted	Placement reports from mentors
Orient students placement	Principal Tutor & Dean	Curriculum Ethical code of conduct	1. Students attendance list 2. Number of students attending brief	Focus Group discussion
Get feedback from placement supervisors	Clinical coordinator	Files	1. Signed supervisors' reports	Observation
Draw a comprehensive timetable	Principal tutor & secretary	Stationary, and computer	1. Copies of Time-table displayed in lecture rooms and general notice board	Structured interview & observation

Table B: Activities implemented for adequate supervision

TASK	Responsible officer	Resources	Indicators	Measurement
Students allocated mentors	1. Clinical coordinator 2. principal tutor 3. class representative	1. Stationery	Signed log books End of rotational reports	
Students attain minimum number of practical hours	1. Clinical coordinator 2. Class coordinator 3. Principal tutor 4. Clinical Mentor		1. Number of clients attended 2. Attendance register	1. Observation 2. Interviews
Clinical coordinator meeting with workplace mentors	1. Clinical coordinator 2. Head of Orthopaedic officers	Stationery	Minutes of the meeting	1. Observation

Table C: activities implemented for Motivation

TASK	Responsible officer	Resources	Indicators	Measurement
Work place supervisors given facilitated	1. Principal tutor		Attention given to students Log books signed Students attending mentorship sessions	1. Focus Group Discussion 2. Observation
Students are rewarded – Practicum contributing to final exam results	1. Principal tutor 2. Clinical coordinator		Marks awarded to students marks pinned on notice board marks compiled and sent to UAHEB	1. Observation
Welfare (teas and meals) for students on practicum is secured	1. Mentors 2. Class representative	Refreshments	Lists of students who receive meals after normal lunch time	INTERVIEW
Students are provided with protective wear	1. Student representative 2. Mentors 3. Clinical coordinator	coats, aprons, gloves,	Number of Students using protective gear during clinical procedures	1. Observation 2. Interviews
Students are assigned practical tasks in placement area	Mentors	Consumables	Activity reports written Log books completed and signed	Focus group discussions
Rotate students through all clinical areas	Clinical coordinator Student representative	Stationery	Allocation Rota displayed in all clinical areas	Focus group discussion

Appendix V: Evaluation workshop

Evaluation Workshop On 12th/May/2017

APPENDIX VI: ACTIVITY PLAN FOR THE STUDY

	Activity	Nov -16	Dec-16	Jan-17	Feb-17	Mar-17	April -17	May-17	June-17	Jul-17	Aug-17	Sept-17
1	Situation analysis											
2	Proposal writing											
3	Implementation											
4	Monitoring of implementation											
5	Data collection											
6	Final Evaluation meetings											
7	Data management and thesis writing											
8	Presentation of findings for award											

APPENDIX VII: BUDGET FOR THE STUDY

S/no.	Item	Unit cost	Quantity	Cost
1.	Papers (Reams)	20,000/-	03	60,000/-
2.	Computer printer	450,000/-	01	500,000/-
3.	Refreshments/meals +drinks	30,000/-		600,000/-
4.	Telephone and Internet	-	-	200,000/-
5.	Flip charts	25,000/-	02	50,000/-
6.	Markers	20,000/-	1 packet	20,000/-
7.	Transport	-	-	200,000/-
8.	Box files	15,000/-	02	30,000/-
9.	Binding of documents			200,000/-
10.	External editor			500,000
	Total	-	-	**2,360,000/-**