Facing the Unknown: Managing Work Integrated Learning in the Midst of Covid-19

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Abstract. This article provides a reflection into the experiences and challenges of a Work Integrated Learning coordinator regarding the management of Work Integrated Learning (WIL) for Environmental Health during Covid-19. It aimed to establish a comparison between the change in processes regarding WIL at a South African university offering the Environmental Health programme pre and post Covid-19. WIL can be described as a structured form of experiential training in a learning programme. It focuses on the application of theory through work-based learning or non-work-based learning and addresses specific competencies required for a qualification, coupled with the development of necessary skills that will render the student as employable and fit for the workplace. Work Integrated Learning exposure provides a bridge for students between academia and their profession. It allows students with an opportunity to apply and merge theoretical knowledge gained in academic studies to "real world" workplace practical experiences, and to prepare students for a career by providing an opportunity to develop relevant professional skills. Prior to the Covid-19 pandemic, WIL activities were predominantly student placements at WIL sites for a determined period. Covid-19 has forced academia to think of innovative means of meeting the objectives of WIL in the absence of physical placement. It has proven that although WIL can be substituted with unconventional methods for a short while, it must incorporate a component of physical exposure to render it successful.

Keywords: Work Integrated Learning · WIL · Environmental Health · Experiential training · Experiential Learning · Work Exposure

1 Introduction

Work Integrated Learning can be explained by many definitions. It can be described as an educational approach consisting of a range of activities or programs that aligns academic and workplace practices in preparing students for employment [1]. Atkinson defines WIL as an umbrella term encompassing different approaches and strategies with the aim of combining the theory of learning with work practice [2]. Institutions adopt WIL as a teaching and learning strategy to improve the employability of their graduates through capacitating students with relevant skills for the workplace [1]. In the higher education arena, theory is integrated with practice to provide WIL activities which include both on-campus and workplace learning [3]. The Department of Higher Education in its

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White Paper stated: "Workplace training and work-integrated learning must be a central part of our training system. Learners exiting universities, TVET colleges and programs funded by SETA's are not, in general, finding work easily. They are often described by employers as lacking the skills needed. Sometimes this seems to relate to a lack of practical workplace experience. Workplace learning must be seen as an integral part of qualification and programs design" [4]. All new qualifications in South Africa are mandated by the Higher Education Qualifications Framework (HEQF) to incorporate WIL into curriculum [5].

Universities are encouraged to generate better prepared graduates that are ready for work [6]. Universities are often viewed as institutions which can and should produce graduates that are 'work-ready' or 'employable' [7] however employability is often mistaken with employment outcomes which is described as "securing a job following graduation or having the potential to earn a higher salary" [8, 9]. WIL activities differ across disciplines but the underlying principle remains the same, the tasks require reflection and intentional connection between theory and practice [10]. There are three key stakeholders involved in the WIL process – the institution, employer and the student. The partnership proves beneficial for all parties. The partnership requires all stakeholders to provide predetermined responsibilities, perform specific functions through mutually benefiting from the involvement [11]. The student gains experience from exposure to the work environment by observing the academic theory in action, the opportunity to practice the theory and in receiving feedback from those in the field [1]. Dunn et.al suggests that good WIL practice requires institutional vision, educational rigor and strong partnership between the university and the placement provider [12].

"Employment-readiness" has been described as a graduate's embodiment of knowledge of theory/subject knowledge, generic skills such as creativity, flexibility, willingness to learn, autonomy, teamwork capabilities, managerial abilities, able to work under pressure, communication skills, time management and technology skills amongst others. It was also mentioned that emotional intelligence and self-confidence are also key factors [10, 13]. Students should also be prepared for work integrated learning. Their preparedness is considered a component of best practice [14]. Students' preparedness greatly influences the quality of the WIL [11]. Well prepared students have positive experiences in gaining the preferred skills, knowledge and attitudes [1]. Students share the view that WIL improves their preparation for the working world. WIL exposure affords them insights into industry through working with professionals in their field [6].

Employers prefer graduates that have been exposed to WIL. Dwesini and Nomnga noted in their research that WIL improved students' skills [15]. Through the WIL placement, employers can build their future workforce and develop novice professionals. WIL promotes partnerships to improve economic growth. It is suggested that a graduate should possess competency in "discipline specific knowledge, skills and attitudes, as well as generic cognitive, behavioral and technical skills and attributes [16]. Employers are an integral part of academia. Higher Education Institutions (HEIs) welcome industry input in curriculum development and WIL feedback in developing suitable candidates to meet the needs of employers [5]. Rayner and Papakonstantinou explains that employers require graduates that have "effective teamwork ability, an understanding of specific

employer business, a capacity to work in a range of cultural, ethnic, and global environments, and that new employees have sufficient confidence and skills to 'hit the ground from day one' [6]. Universities benefit in ensuring the curriculum is relevant and high caliber graduates are achieved meeting the demands of employers [7]. Industry partnership provide an authentic opportunity for learning to take place and builds capacity for both stakeholders – the university and the employer [17].

The purpose of WIL is to increase employability of students however not every activity constituted as WIL, meets that objective. A WIL activity should enhance student learning regardless of the label of a specific strategy [10]. Internationally, WIL is used as a core strategy for technical, vocational, occupational and professional education and training. It involves a combination of structured learning (some of which may happen in a classroom) and real work. WIL programmes typically include instruction in trade-theory or professional knowledge, 'sheltered' practical training and 'real-world' workplace experience. WIL is designed to get the best of both worlds. It uses institution-based training where appropriate and work-place-based practice where possible. The main curricular modalities used in WIL programmes are work-directed theoretical learning (WDTL); problem-based learning (PBL); project-based learning (PjBL); and workplace learning (WPL) [5]. Smith et.al. Posit that there four goals of Work Integrated Learning; integration of knowledge and practice, development and refinement of practice, creation of new knowledge derived from reflections on experience and exposure to the world of work [10]. Researchers agree that for WIL to be effective, activities must be "meaningful, relevant, and intentionally integrated and aligned with university curriculum" [18, 19]. It is advised that WIL should incorporate the different learning strategies interchangeably. This can be done through simulation laboratories, interactive discussion groups and forums, virtual and e-learning and the workplace. For deep learning to occur and for the development of soft skills, students need to be exposed to a combination of learning modes and environments [13]. For Environmental Health in South African, workplace learning is the most common method of WIL used [20].

2 Types of Wil

Universities may choose from a selection of WIL approaches including different types of placements including internships, practicums, clinical rotations, industry-based learning (IBL), and cooperative education [21]. Other WIL activities include short work exposure, apprenticeships, learnerships, simulated learning, work-directed theoretical learning, problem-based learning and project-based learning. Short work exposure can be described as a placement between a day to a week. Students usually observe work and are guided by experts in the organisation. During workplace-based experiences students actually carry out tasks within their curricula. The duration of placement is between one week or longer (3 months) [22]. These WIL options are managed by the institution. There are challenges which are involved with the introduction of various WIL approaches. There is the challenge of ensuring that all stakeholder needs are met: students, employers and industry bodies as well as strong industry partnership [12]. Apprenticeships on the other hand are managed by the employer are regulated WIL programmes for trades specified in the National List of Artisan Trades. Learnerships

are regulated WIL programmes with the focus around the acquisition of a qualification. Learners are considered employees in this type of WIL option. Learnerships are managed by employers but the stakeholders involved are the learner, employer and training provider [22].

Brennan and Little [23] define Work based learning (WBL) as 'learning for, at, or through work'. WBL includes formal and informal involvement of employer in the university and the workplace to provide students with the skills required. Problem based learning (PBL) is a range of pedagogic approaches that are designed to encourage students to learn through research or practice-based problem. Project based learning (PjBL) is a combination of PBL and WBL. It combines inquiry, real-world problems, and student engagement. Project work is formulated to facilitate students' understanding of essential concepts and practical skills provide a meaningful and authentic context for learning. Other types of WIL are Work-directed theoretical learning (WDTL) and Simulated Learning [24].

Work-Integrated activities are selected based on the nature and purpose of the qualification type, programme objectives and outcomes and the NQF level to name a few. Some universities have shifted away from the traditional WIL approaches towards non-placement WIL such as industry and community projects, problem-based learning, simulated and/or online workplace environments and other work-related assessments that mirror the working world and can be viewed as the forefront of thinking and practice [20]. Non-placement WIL offers students "complex tasks to complete over a period of time with opportunities for reflection and collaboration". The aim is to simulate an authentic and relevant experience that is offered outside of placements [5]. Pedagogical theory provides guidance on non-placement alternatives. The theory suggests that the main characteristics of placement-based WIL be included in non-placement alternatives [10].

There are numerous benefits to Work-Integrated Learning particularly in work placements. Work based WIL provide graduates with direct access to the working world and their specific professional field. This exposure exponentially increases their employment opportunity [17]. Connections and professional relationships are formed during these placements which is an employment advantage to the student. Work placement also improves academic learning due to the skills developed during work placement. Students observe and integrate theory in practice and receive feedback from experts on the field regarding their ability to apply it. WIL allows students the opportunity to refine and develop their professional skills [11].

3 Work Integrated Learning in Environmental Health

3.1 Background of WIL Environmental Health

National Environmental Health Policy defines Environmental Health as: "aspects of human health, including quality of life that is determined by physical, chemical, biological, social and psychosocial factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of present and future generations" [25]. It is a branch of public health that involves the natural and built environment

that affect human health. Environmental Health services are services which are guided by the environmental health policies. These include monitoring and control of activities, promoting environmental parameters and advocating for environmentally friendly behavior and use of technology [26]. The policy provides the scope of Environmental Health practitioners (EHPs) which include; Food control ensuring the safety and quality of food, Monitoring water quality and availability, Waste management, General hygiene monitoring, Vector control monitoring, Chemical safety, Noise control, Environmental pollution control which includes water and air, Radiation monitoring and control, Health surveillance of premises, Surveillance and prevention of communicable diseases and Malaria control, Port health services which includes air, land and sea ports, Control and monitoring of hazardous substances and aspects related to disposal of the dead [27]. EHPs perform an array of tasks involving communities, industry, government and other public and private entities. Environmental Health Practitioners (EHPs) are health professionals who integrate knowledge of the physical, biological and social sciences. They possess the skills required to investigate, evaluate and control the many facets that affect the environment in which we live.

South Africa has and currently is experiencing a range of environmental risks which were birthed in the apartheid era. We are faced with challenges of urbanization, agriculture and mining issues, industrialization and the global challenge of climate change and the associated effects [26]. EHPs are at the forefront of environmental health services and are trained to play a crucial role in resolving environmental health issues and in the prevention of environmentally induced disease or adverse health outcomes.

The Environmental Health qualification and profession is governed by the Health Professions Council of SA (HPCSA). The qualification differs between institutions offering the programme. There has been a phasing-out of the previous National Diploma into the 4-year Bachelor's Degree in Environmental Health. The HPCSA mandates the completion of 100 days /600 notional hours/60 credits of WIL within the 4 years of the degree.

3.2 WIL Prior to Covid-19

The integration and management of WIL differs among the seven institutions which offer the qualification. As the WIL coordinator at a University of Technology (UoT) offering Environmental Health, Work-Integrated learning has been integrated into different modules to offer exposure in preparation of students for the scope of a practicing EHP. The WIL component is distributed as credits or notional hours over the four years of the degree to a collective prerequisite of 100 days as per the Health Professionals Council of South Africa (HPCSA) Environmental Health directive. WIL is documented by students and recorded using a logbook designed and mandated by the HPCSA across all respective universities. The logbook provides a uniform system of managing WIL activities completed by students and reports on the involvement and verification of all parties – lecturer, supervisor and WIL coordinator. Record keeping by the WIL coordinator is done both electronically and manually providing up-to-date information on WIL activities completed per semester for each student according to the allocated WIL modules. WIL activities at the UoT include; Site visits e.g. landfill sites, water purification plants, vector control units, Industry visits e.g. refinery and manufacturing plants,

Municipal placements, Guest lectures, Projects and Community Engagement as well as Inspections, audits and reports. My experience as a WIL coordinator has led me to develop and refine an efficient process of recording, monitoring and managing WIL for the current four-year Bachelor of Health Science degree students. A plan of activities per a module are normally determined for the year prior to practice and guidelines are provided to all students in the logbook.

3.3 WIL Experiences and Challenges from Covid-19

The start of the National Covid-19 lockdown, has led to growing uncertainty regarding academia and the new normal to be expected. It posed a great challenge in finding contactless virtual means to substitute activities while delivering the same quality of experience. A plethora of mixed feelings from confusion to fear have been echoed by staff and students. For the WIL component of the EH profession, the premise has always been the exposure of students to the work/industry field in order to afford them various opportunities to form a connect between the theory (academics) and practices (exposure of the field). Due to the nature of WIL, the substitution of certain activities with an online version required innovative thinking. These activities had to be revised by academics at the start of the Covid-19 pandemic. They had to ensure the learning outcomes of the activity are still achieved while generating a form of evidence to document as the completion of WIL.

It can be assumed that the retrospective experiences and challenges are similar across universities and WIL coordination. There has been a challenge prior to Covid-19 regarding a reluctance of placement sites i.e. employers, accepting students for placements at the organization. Reasons for the reluctance are poor capacity to mentor or provide students with the work exposure while simultaneously completing the employees work targets. Jackson et.al. Found that capacity to mentor/supervise, finding suitable projects and not being approached by universities were listed as some of the barriers/challenges experienced by employers [28]. Other reasons are the placement period during a time of the year that employees are undergoing audits, financial year end or winding down of the year where employees of the organization do not find it an ideal time for acceptance of students [29]. These reluctances were exacerbated during the period during and after Covid-19 restrictions.

Occupational Health and Safety regulations pertaining to Covid-19 restricted employers from allowing unnecessary individuals into the organization. This prevented students' access to workplaces. The economic impact of Covid-19 on industry has impacted the labor market forcing downsizing. This decreases the workforce available to provide WIL exposure to students. In the case of municipalities and EHPs, the pandemic period has been particularly demanding as EHPs have been inundated with requests of their services. The lack of work exposure of students registered during the Covid-19 period deprives them of experiences related to integral aspects of the scope of practice. Graduates are not optimally prepared for the working world from a practical perspective although they may possess the theoretical knowledge required. Graduates often lack the practical and soft skills to enter the working environment. Exposure to the work environment through WIL affords students opportunities to develop their soft skills as much as the practical skills.

The task of placing students in Environmental Health Municipal offices has always been a challenge prior to the Covid-19 pandemic. Managers of Environmental Health Municipal Departments limit the number of students they receive as they find it difficult having students "shadowing" Environmental Health Practitioners (EHPs) and impeding on their busy workday. Resource constraints such as limited municipal vehicles for site inspections further impedes on the ability of EH offices to accept students. Practical field experiences and exposures are crucial in understanding how to apply theory as a future EHP. The difficulty arises when the question is how do we allow students this exposure in the face of such current obstacles. There is also an increasing competitiveness amongst existing placement seekers such as other UoTs which often place students for WIL during similar periods in the year. Municipal and organizations have limited capacity to accept students. Where more than one UoT requests placement of students, not all placement requests are granted. The academic calendar is an additional challenge as semesters are time restricted leaving minimal periods for prolonged work placements. In light of the many challenges which may exist post-Covid-19, universities are encouraged to seek newer forms of WIL in the presence of the new normal.

3.4 WIL Interventions

Higher Education Institutions (HEIs) had to devise plans to adapt to the circumstances of Teaching, Learning and Assessing (TLA) online as new updates were provided by the Minister of Higher Education [20]. Guidelines were provided for universities to follow regarding Work-Integrated Learning in the context of the Covid-19 pandemic by Universities of SA. The guidelines ensure that meaningful WIL can take place during this period in additional new, creative and innovative ways. This was developed by Universities of South Africa in consultation with role-players including USAF, particularly its World of Work Strategy Group, the Council on Higher Education, the Department of Higher Education and Training, and higher education institutions [5]. The professional board assisted universities with the challenges by decreasing the WIL requirements for graduation from 100 days to 80 days taking into consideration the difficulties experienced by institutions. This amendment has been exercised for the period 2019 – 2022.

In the absence of physical or contact WIL exposure the following activities were substituted during the Covid-19 and a period post-Covid-19. Real work-based problems were identified and required students to solve, employers were engaged to provide guest lectures and seminars/workshops on content that would normally be observed or experienced in a contact workplace visit or placement. Abattoir training is normally conducted over two weeks at a registered functioning bovine and poultry abattoir. Simulated abattoir training substituted the conventional method of the training which is not the ideal means to gain the necessary practical skills afforded through a physical placement. Reports and assignments were also used to constitute a WIL activity as they were adjusted to the requirements of the WIL modality selected and accordingly assessed.

Other WIL activities that were used during the restricted periods where conventional WIL placements were not viable are video-clips (presented by individual students and/or groups), role-plays to illustrate content, presentations by students or lecturers, case studies to simulate project-based learning and e-portfolios as means of evidence. The activities have to be done predominantly online through communication programs

such as MS Teams or Moodle using videos, podcasts or guest lectures provided on these platforms. Other lecturers have opted to ask students to use their own communities for observations to complete the allocated WIL task. All activities had a linked assessment or submission to ensure students attend the online session particularly for those with guest lectures as attendance cannot be ensured in any other way. To manage this process and ensure all activities are documented and recorded for each student, a designated WIL classroom had to be created with myself as the WIL coordinator being the facilitator of the group. All WIL activities were coordinated, submitted and managed on this platform.

4 Recommendations

Covid-19 has caused many challenges however it has also afforded universities with opportunities for innovative and exciting changes from the traditional means of conducting WIL. Regardless of the activity, WIL depends on the continued involvement and support of employers in order to meet the objectives of WIL. After reflection on the management of WIL post-Covid-19, it is recommended that WIL placement is over a longer duration and placement is done more frequently [6]. Placement of students for 1 week a year is insufficient to gain the necessary practical skills required for optimal employability of the student. The longer and more frequent the workplace-based components of a WIL programme, the more effective it is likely to be [17]. It is also recommended that WIL involves a level of mentorship during placements so that they gain problem-solving skills to ensure work-based problems are resolved quickly and opportunities for learning are fully exploited [30].

Employers, specifically municipalities are encouraged to work with universities in suggesting ideal placement periods that will work for both organizations to ensure students gain workplace exposure and to learn from each other to adopt best practice [29]. There should also be collaboration between Environmental Health programmes of universities to discuss a schedule or placement plan that prevents overwhelming municipalities with placement requests and ensures that all students are successfully placed at the desired placement site. On-going communication with placement sites is essential to maintain a good working relationship between both stakeholders. Communication and development should be continuous to ensure that the professional relationship evolves and improves to keep abreast of what students need to know in terms of theory and practice. In order to ensure good WIL practice there must be institutional vision, educational rigor and strong partnership between the institute and the placement provider. To ensure a well operating partnership between both stakeholders, considerable effort, skill and collaboration is required [12].

WIL depends on the continued involvement and support of employers. Universities must therefore strive to address the skills needs of local employers and accommodate their business objectives, operating procedures, work processes, calendars, timing and managerial systems. Technology is continuously evolving providing improved means to conduct WIL and WIL activities. Universities should explore technology as a complementary mechanism to WIL to develop certain skills and to introduce students to technological advances in the field [31]. Further research is encouraged in the field of WIL particularly in relation to Environmental Health. There is a gap in research in the South African context.

5 Conclusion

The experience has encouraged unconventional thinking, innovation and creativity regarding management of WIL. WIL for EH has been through many changes over the years and is an evolving process. In collaboration with relevant stakeholders we will be able to capacitate graduates that meet the needs of employers and the work environment. Through continuous reflection and improvement of systems and processes we can ensure that WIL is relevant and efficient. Being a contact university, we were not trained or exposed to working remotely. This was an entirely new experience requiring a shift in thinking in order to develop alternate methods of conducting WIL activities to achieve the determined outcome. We learned along the way and became comfortable with unfamiliar programs and platforms. As a University and programme, we remain optimistic in the transition to making WIL successful despite the challenges. In many areas, we have been proactive and almost pioneering in planning the TLA of the curriculum and WIL. This has greatly assisted in alleviating much of the anxiety in facing the unknown as we are preparing and anticipating where possible. It is through times of uncertainty, that the spirit of comradery and collegiality is fundamental to sustain any program or institution. The WIL program has seen significant change over the years from a WIL program for the National Diploma to an entirely revised program for the BHSc: Environmental Health degree. The changes have been monumental for many Environmental Health HEI Departments in finding their way into an unchartered area. As an institution, we have embraced and flourished in the introduction of these new and unfamiliar changes. We have amended and revised our WIL program over the years until finally reaching a uniform agreement of management of WIL going forward. It is with the same positivity that we approached the new way of managing WIL post-Covid-19. We are aware that there will be obstacles to overcome as we progress but the field of Environmental Health and the development of capable and well-skilled graduates will drive perseverance.

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