

Enhancement of Hands-on Teaching and Learning Experiences through Project-Based Learning among Interior Design Students

*Nansubuga Lydia, Dr. Justine Nabaggala (PhD) & Dr. Elizabeth Opit (PhD)
Kyambogo University, Uganda*

Abstract

This paper presents findings from a study conducted in the Department of Art and Industrial Design, Kyambogo University. The study was premised on the theoretical concepts of “learning to learn” and “learning by doing” as vocational education and training (VET) models that guarantee students’ full participation towards the development of professional competence. A participatory action research model was used to carry out this study using qualitative methods of data collection and analysis. Data was collected from thirty-five (35) study participants consisting of 25 students, three Alumnus, four instructors, one technician, one departmental administrator and one expert from the world of work. Individual interviews, document analysis, observation and focused group discussion meetings were used to provide descriptive data for content analysis. Study participants revealed that the graduates of interior design lacked both professional confidence and practical competencies due to inadequate practice. Consequently, the stakeholders democratically identified two intervention strategies for enhancing students’ hands on experiences; a skills lab and the project-based learning approach. The study’s intervention strategies were progressively implemented over a period of one year. The evaluation findings of this study revealed that the interventions enabled students to acquire confidence, more knowledge and professional competencies in interior designing. Project-based learning enhanced team work among all the stakeholders and individual learner’s participation in project tasks, thus the success of the study.

Key words: *Occupational training, vocational, project-based, competencies*

Introduction

Vocational Education and Training (VET) prepare students for a certain trade within specific career paths. It involves craftsmanship, practical experiences and problem solving (UNEVOC, 2009). Currently, in many countries, governments and individuals invest heavily into vocational training schemes for the production of a skilled workforce (UNESCO-UNEVOC TVET Learning Forum, 2018). Consequently, today vocational pedagogy is a core strategy required for achieving skilling and re-skilling the population in vocationally-oriented trades needed towards productivity and sustainability of the modern economies (Lukas, 2015).

Within the context of this paper, vocational pedagogy is defined as a field concerned with the different methods, approaches and strategies used by instructors to ensure that students obtain the desired competencies for the world of work at the end of their training period. In Uganda's case, the government has implemented the 'Skilling Uganda' project for providing skills to Ugandans. The project involves teaching vocational programmes from primary school level so as to enable learners acquire vocational skills from an early stage. The Business, Technical and Vocational Education and Training (BTJET) Strategic Plan 2011/2020 denotes a paradigm shift for skills development. The shift requires the TVET system to emerge from an educational sub-sector into a comprehensive system of skills development for employment, enhanced productivity and growth (UNESCO-UNEVOC, 2014). In this context, even young adults who are not college-bound benefit from the provision of the most effective training scheme (Parey, 2016).

Statement of the Problem

Through a research initiative under the Masters in Vocational Pedagogy, strategies for enhancing the acquisition of practical competencies among interior design students in the department of Art and Industrial Design in Kyambogo University (KyU) were implemented. Due to inadequate materials, tools and equipment, the teaching and learning environment was, more theoretical than practical learning, yet the latter is essential for competency acquisition in VET. A feeling of dissatisfaction was expressed by the alumnus, students, academic staff and experts from the interior design (ID) companies about the inadequacies of the work processes used for the production of ID graduates at KyU. The alumnus lacked the practical skills expected of them in the world of work, the students expected practical learning which was non-existent, instructors were not provided with instruction materials and tools to facilitate practical learning while the employers within the World of Work complained about the graduates who lacked professional confidence and practical competencies expected of them. Consequently, the study participants democratically, identified two intervention strategies, namely; establishing a well-equipped skills lab and the use of a Project-Based Learning approach in which students would be exposed to appropriate vocational pedagogical approaches for the development of relevant professional skills for the world of work.

Methodology

The study used a participatory action research (PAR) model towards achieving tangible results that validated the research process. This research design upholds the concepts of 'learning to learn' and 'learning by doing' as the theoretical models that underpin all the practices adopted in vocational pedagogy for the achievement of professional competencies in VET. These two pedagogical models enable the learner to own his/her learning process and ensure mastery and retention of what is learnt. The dual commitment in action research enabled participants to study the

training process in the DAID programme and to concurrently collaborate in all research activities towards a desirable outcome. . Further, Herr & Anderson (2015) stress that, action research is best done in collaboration with others who have a stake in the problem under investigation and are involved with relevant skills or resources even though the perceived need for change comes from within the setting. Consequently, instructors, students, alumnus, administrators, employers and collaboration partners (companies where students carry out internships) totaling to thirty-five stakeholders were involved in this research.

Findings from the situation analysis acted as the spring board to future workshop discussions with study participants in which intervention strategies were established. Data was collected through observation of the activity trends during the implementation of intervention strategies. Triangulation of information from various participants in the study prompted participants to conduct reflective and brainstorming sessions during the various phases of the study as follow-up data collection activities. The use of log books, photos, videos, document analysis, checklists and interview guides contributed to the validity and reliability of data collected during the research processes. Data was systematically analyzed in themes using the triangulation techniques in order to gain confirmation of data obtained from the different sources. The rationale for triangulation was also to cross check and cross-breed information gathered from different categories of study participants to make a final deduction.

Findings

Results were presented and discussed in themes under the respective study objectives. Through the establishment of a skills lab as a tool to enhance practical learning, a collaborative learning strategy was implemented by the study participants. Using triangulation to categorize the obtained data, four main themes were established, namely; collaboration, pedagogical strategies, contradictions and complexities.

Collaboration

Collaboration in this study involved group work where study participants engaged in specific aspects of the project towards establishing a skills lab from the existing dilapidated and un-resourced ID lab. For instance, the skills lab space was surveyed, available sewing machines were inspected, serviced by the technician and spare parts replaced, the four (4) interior design instructors laid strategies on how to teach the semester course units towards the establishment of the skills lab, and through project-based learning students and instructors collaboratively brainstormed on how to embrace the skills lab project during learning processes. Such experiences uphold Gillies' (2017) assertion that collaborative learning challenges students' thinking and scaffold their learning to promote critical and creative problem-solving skills and enhances cognitive understandings. The positive response from participants towards the establishment of a skills lab was an immediate intervention that required attention for effective teaching and learning in the interior design program at KyU. The inclusion of the student participants in the planning motivated

and encouraged them to own the project-based learning processes. This created a favourable environment for learning.

Pedagogical Strategies

According to Wells (2004), pedagogical strategies are the effective instructional designs. Project-based learning, problem-based group learning, discussion and dialogue and hands-on learning were the strategies employed in order to encourage student centered and practical learning. Through project-based learning, 11 Diploma in Interior Design (DID) student participants used the skills lab as their site for the practical project in a real setting. Through problem-based learning, they applied their theoretical knowledge of advanced paint effects by painting the interior walls of the lab. During the course of introduction to paint effects, the eleven student participants renovated the tables into functional cutting surfaces and used them during the designing of soft furnishing projects. Participants with their instructors carried out pilot visits to different outlets that sold paints, tools and materials in order to establish the costs and estimate the quantities required for the project. This was meant to expose the participants to the different outlets where they could access tools and materials in the world of work, knowledge and skills in preparing a bill of quantities for painting projects. Through such activities, students learnt from each other because the smaller numbers allowed each student to share his/her ideas with others. During group work student participants gained skills of discovery, critical thinking, integration, sharing, and effective application of knowledge. This finding is supported by Durlak (2011), who stresses that, students typically do not learn alone but rather in collaboration with their peers. This is also supported by Gibson and Vetmeulen (2003), who observe that, the presence of sub-groups within a team may stimulate learning behavior. In this learning process, the instructors acted as mentors guiding students on how to consolidate their design ideas and critically analyze them to suit the project strategies.

Discussions and dialogues motivated the participants to open up and give information which was vital for the study. Through these interaction methods, participants were facilitated to; identify the root cause of the production of incompetent graduates, lay strategies for the gap, and formulate an action plan. A notable positive outcome of dialoguing was also witnessed when the instructors interfaced with the participants to select between two methods of conducting learning during the study. One was studying using the limited resources available at the department and the other was adapting project and problem-based learning. The latter included cost sharing in order to buy tools and materials needed for learning. At the end of the dialogue, regardless of a cost implication, all the participants agreed to use the project learning approach. In this context, instructors were not the sole source of knowledge; they acted as fellow researchers and as mentors during the teaching and learning processes. This created a favorable and conducive learning environment.

Student participants applied their vocational knowledge into practice when they participated in refurbishing the walls of the former ID studio. Damaged areas on the walls were filled with Filler paste and they were painted with undercoat paint various finishing paint effects. These practical sessions were conducted under the instructors' mentorship. This is in line with Mjelde, (2006), who argues that learning is made meaningful by means of one doing something together with an "expert" in such a manner that the learner gradually masters even more difficult parts of the tasks at hand. The hands-on learning experiences also motivated the student participants because they; experienced the feel of the actual work environment, were appreciated by other stake holders at the diploma in interior design (DAID), and developed confidence to face the world of work.

Concept of "Learning by Doing" and "Learning to Learn" in Relation to Competency Enhancement

The intervention strategy of establishing a skills lab was in line with the Holmwood House Preparatory School (HHPS) (2017) philosophy that associates acquisition of competencies by learners with pedagogical training that gives them opportunity of learning to learn through hands-on experiences. The skills lab intervention in this study ensured that students engaged in learning how to learn rather than just learning what to learn. Wirth (2008) also argues that, "the learning to learn" concept prepares students for emerging challenges in the diverse democracy and interconnected world of work. Its emphasis is on training students who are purposeful and self-directed, empowered through practical skills, informed by knowledge and ways of knowing and responsible for personal actions and civic values.

This Action research gave student participants an opportunity to improve their ability to manage their own learning, challenge themselves, apply contextualized problem solving strategies, exhibit self and collective responsibility, develop a sense of appreciation towards learning in relation to their day to day lifestyles and become independent thinkers as advocated for by Warren, (2011). Using the instructional materials, tools and equipment in the skills lab increased the participants' chances of acquiring competencies and confidence required for an interior designer in the labour market. The 'learning by doing' concept as an authentic means towards gaining skills and knowledge in Paint effect and soft furnishings was vital during the implementation processes. Reese (2011) defines "learning by doing" as learning from experiences resulting directly from one's own actions, including trial-and-error learning or discovery versus instruction, practical experience versus book learning, the practice-theory-practice dialectic, and 'proof upon practice'. Korororero & Whakaaro, (2016) contend that, although learning content is important, learning from the process is at the heart of experiential learning. He also stresses that, in order for a learner to successfully acquire competencies by applying theory into practice one must adopt the 5Rs in the philosophy of learning to learn. These include; Resilience, Resourcefulness, Responsibility, Reasoning and Reflection. It is believed that, these qualities are intrinsic to each student's achievement and development. Through the involvement of students in an action-based study, opportunities were created for them to develop

skills through their participation in the refurbishing of the skills lab and using it as learning space.

Resilient learners are able to persist in their learning through a positive way even when faced with challenges. Student participants collaborated in groups, remained committed throughout their learning endeavors and practiced flexibility whenever situations changed and required alternative ways of performance. Hall (2016) stresses that, when students are taught coping skills and productive ways to communicate their needs, their behavior, social skills, and sense of self-worth improve. Further, the study prompted participants to develop resilience during the study and ably identified the learning gaps in the ID courses. Student participants were able to question through a relevant, open-ended manner and expanded on their knowledge bank in interior design. They generated creative and imaginative ideas to complete tasks, found, gathered and selected information from different sources in order to learn.

Kolawol (2012) defines resourcefulness, as “the quality of being able to cope with a difficult situation in one’s attempt at succeeding”. Through problem based learning guided by the “learning to learn” concept, participants were involved in critical thinking, creativity, product development and research. Since the establishment of the skills lab was a learning process, development of budgets for the study activities was vital in the participants’ attainment of financial management skills. Other qualities learners are expected to acquire include; responsibility, self-motivation and adaptability to various ways of learning (HHPS, 2017). They contemplate on the things they need to learn and find out the facts about them independently. Participants understood the need to refine, practice skills and ideas, contributed effectively and sensitively to group discussions, organized and delegated assignments objectively. Responsibility was essential in this study due to the fact that the establishment and utilization of the skills lab required full time participation from participants and this called for their being responsible in executing given tasks.

Reasoning was the other quality in support of learning to learn philosophy. Reasoned learners are able to draw together evidence and information to arrive at a conclusion. They can easily apply the existing facts and knowledge in an organized and logical way to solve problems, evaluate and assess their work. In due course identify ways in which they can improve their work and learning plus explain their thinking. Reasoning was intrinsic and objectively conducted during the study; in that the participants were able to develop work plans based on the condition of the space in which the lab was to be established and other intervention strategies for initiating change in the Interior Design section.

Further, reflection is another quality that supports the ‘learning to learn ‘concept. According to Aronson (2011), reflective learners are always said to be able to think deeply, pausing to look, listen and concede. Aronson, (2011) further described four levels of reflection: from habitual action to thoughtful action, then on to reflection, and ultimately to critical reflection. He defined critical reflection as transformative learning in which reflection on experience leads to a new understanding and a plan

to modulate one's behavior in the future. Learners are expected to respond positively to constructive criticism, review progress and plan ways to improve, either on their own or after discussion. Reflective learners are capable of describing their progress and discuss their experience, emotions and responses. This quality is central to interior designers because, they interact with a wide range of clients having vast ideas and expectations. This calls for students to learn to listen, critically reflect on what they do and also be ready to take in feedback positively and act on it in order to satisfy all their clients. For example, during an evaluation workshop, participants were able to make changes in the colour effects initially considered for the interior walls of the skills lab through a democratic process based on the occurrence of human mobility around the identified space. Having owned up to the short falls gave the participants an opportunity to appreciate their competency development in Interior Design through real life experiences.

Conclusion and Recommendations

The study sought to enhance acquisition of practical competencies and confidence among interior design students. Several strategies were identified and establishing a functional skills lab was the one prioritized to facilitate practical learning. Through project-based learning, successfully the skills lab was established and utilized; an impact was made on the acquisition of skills and competency among interior design students. Participants were engaged in practical activities and this made a positive impact towards improving their attitudes, knowledge and skills acquisition. Participants worked hand in hand with the academic staff to accomplish tasks through collaboration and cost-sharing drives. Practical learning motivated participants into discovering new knowledge and becoming more inquisitive about their trade. The success of the research relied heavily on team work, to facilitate practical learning in the skills lab and also required collaborative efforts of participants in the department who included administrators, academic staff, students, technicians and experts from the world of work to collaboratively facilitate and fund the practical learning processes. Skills and competencies are not acquired by a one-time experience but over time through constant practice. Therefore, a need to uphold workshop learning and also put in place regular pedagogical strategies that equip and maintain the skills lab with relevant materials and tools; to facilitate collaborative and practical learning sessions linked to the world of work for students to experience real life-oriented assignments.

References

- Aronson, L. (2011). Development and pilot testing of a reflective learning guide for medical education. *Medical Teacher*.
- Durlak, J. A. (2011). *The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions*. Chicago: Child Development.

- Gibson, C. & Vermeulen, F(2003). A healthy divide: Subgroups as a stimulus for team learning behavior.. *American Journal of Educational Research*, 202-239.
- Gillies, R. M. (2017). Promoting academically productive student dialogue during collaborative learning. *International Journal of Educational Research*.
- Hall, K. S. (2016). *Fostering resilient learners: Strategies to creating a trauma sensitive classroom*. Alexandria: ASCD.
- Herr, K. & Anderson, G. L. (2015). *The action research dissertation: A guide for students and faculty*. NYC: SAGE .
- Holmwood House Preparatory School. (2017). *Holmwood House Preparatory School*. Retrieved from : <http://www.holmwood.essex.sch.uk/>
- Kolawol. (2012). Resources and resourcefulness in Language. *An International Journal of Language, Literature and Gender.*, 98.
- Korerorero, H. & Whakaaro, H. (2016). *The value of “experiential learning”*. *Show me and I will learn*. CORE Education.
- Lukas, B. (2015). *Vocational pedagogy: What it is and why it matters*. Winchester : <https://www.researchgate.net/publication/296437747>.
- Mjelde, L. (2006). *The magical properties of workshop learning*. Bern: International Academic Publishers.
- .Parey, M. (2016). *Vocational schooling versus apprenticeship training*. Econstor.
- Reese, H. W. (2011). *The Learning-by-Doing Principle*. Virginia: American Psychological Association.
- UNEVOC. (2009). *Vocational Education and Training*. Bonn, Germany.
- UNESCO-UNEVOC. (2014). *World TVET Data Base*. Bonn: UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.
- UNESCO-UNEVOC TVET Learning Forum. (2018). *Managing skills in a time of disruption*. Bonn : UN Campus.
- Warren, M. (2011). *Learning How to Learn: An Essay on the Philosophy of Education*. Pittsburgh: University of Pittsburgh.

Wells, C. V. (2004). Service-learning and mentoring: effective pedagogical strategies. *College Student Journal*, 573.

Wirth, K. R., & Perkins, D. (2008b). Learning to Learn. Retrieved May 12, 2010, from <http://www.macalester.edu/geology/wirth/learn>