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Article

Work-based Learning through School Production Unit in Polytechnic Institutes

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Abstract

Work-based learning (WBL) is a planned activity that integrates learning and work together to develop knowledge and skills for future employment. The study focuses on exploring WBL in the school production unit, which is a part of the school laboratory that works for the production of goods, items, or provision of services. This paper synthesizes, compares and contrasts the approaches of the WBL in production unit with the help of the literature through a systemic literature review.

The production unit in Technical and Vocational Education and Training (TVET) institutes has been found as a contributive factor to experiential learning, active learning employability and entrepreneurship skills, work-based sustainability for students, and increased cooperation/collaboration learning ability of students. These are major applications of the implementation of WBL through school production units in TVET schools. The paper concludes that TVET education institutions anticipate the production-based modality to ensure the sustainability of WBL.

Keywords: work-based learning, school production unit, TVET, decent and sustainable employment

Background

The technical and vocational education and training (TVET) has been practiced in formal, non-formal and informal approaches to education for the acquisition of skills and knowledge for better performance with sustainable employment (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021). It is one of the important tools for social transformation with equity, inclusion and sustainable development (El-Ashmawi, 2017). The objective of TVET is to prepare a workforce by acquiring knowledge, skills, and abilities that could enable them for effectively performing their job. Work-based Learning is one of the important learning strategies to fulfill the aim of TVET. In WBL, instructors play a significant role in strengthening learners' soft skills or generic skills, allowing them to gain hard skills like professional and academic skills while working in the workplace (Holzer & Lerman, 2014). Likewise, students are exposed to real work environments and involved in entrepreneurial activities in the workplaces (Hoffman et al., 2016).

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The most common work-based learning programs available in TVET polytechnic institutions to facilitate learners at workplace include field trips, school production units or school business, in-plant training, work shadowing, hospital/community posting (health related subjects), collaborative learning, and industrial apprenticeship (Haruna & Kamin, 2019) in carrying out the task, two main elements are involved; institutes and workplaces. Students receive training in the theory aspect from school and practice in industry. Therefore, relationship between these two elements is essential for the attainment of TVET goals. This study aims to provide a systematic review of published researches on the current practice of Work-based Learning in TVET and to assess the major challenges that affect the relationship between school and workplace with a view to make recommendations for the best practice in future application of WBL in TVET.

WBL has been performed through different activities, such as cooperative work, field trips, internships, industrial apprenticeships and school-based production units. Among all, the school-based production unit has been prevailing as the life changing modality in TVET (Thapa, 2021) because it is also learner-centered learning in which a professional teacher supports learners in their learning activities.

The school-based production units are a branch or department of TVET institutes' practical areas or fields, or lab where learners are involved in either manufacturing of goods as per market needs or providing services to the communities on the basis of their related subjects under the guidance of their professional teacher (Chukwu et al., 2019) fishery, clothing and textile, catering craft practices, data processing, among others. Contrarily, feed production, salesmanship, cosmetology, leather goods manufacturing and repair, GSM maintenance and repair were not functional at all in all the institutions surveyed. Challenges found to hinder school production/consultancy services of TVET institutions were: lack of organizational vision for productivity. The school-based production unit is a new example of a work based leaning program that expands the interest of learners in TVET, because there is support to improve employability and upgrade skills for decent and sustainable work. It is the area, where manufacturing facilities, production facilities, and sufficient service providing premises as well as sales and distribution facilities must be available as per standard specification to assure learners' acquisition of adequate work skills and make them skillful as per industrial demands before the completion of their degree.

WBL in TVET Institutes

The Council for Technical Education and Vocational Training (CTEVT) is the apex body in the TVET sector in Nepal. CTEVT has a mandate to prepare and develop basic, middle and high-level technical workforce for economic growth and sustainable development (CTEVT, 2021). The main involvement of CTEVT is to formulate policy, maintain quality assurance, develop curriculum, conduct instructional deployment, manage trainings and conduct research activities in TVET. WBL is one of the important learning mechanisms for all types of their program, which include field trips, school production unit or school

business, in-plant training, work shadowing, hospital/community posting (in health trade), collaborative learning, and industrial apprenticeship (CTEVT, 2020).

School production unit is a CTEVT supported program for all technical schools to improve educational relevance by integrating theory in class and practice in the workplace, i.e. in a school-based production unit for manufacturing and producing products with the best creative and motivated production plan and by providing efficient service in school premises. CTEVT issued a directive for the operation of a production unit in a TVET school in 2019 in order to expose learners to the real world or work for the production of a quality skilled workforce through TVET institutes in Nepal. CTEVT reinforces to establish a production unit for its constituent, affiliated and community schools according to their relevant subjects (CTEVT, 2020). A school-based production unit provides not only a work-based learning environment within school premises, but also a chance to earn money for students. This earning with learning helps them get sustainable TVET.

The foundation and running of the school-based manufacturing/service unit in TVET school is relied upon giving on-the-job training for learner and providing them business exercises to support the day-to-day operation of the TVET school so that the learners could be satisfied with the ideas of learn, earn and pay (CTEVT, 2020). The school-based production units are expanding the learners' interest in the specialized and professional training on the grounds that there is support for improving employability abilities and updating competences as per market need.(Yuliana & Hidayat, 2019).

School production units provide students work-based learning opportunities that are similar to those in industry by exposing them to machines and materials and giving them experiences in the workplace (Chukwu, & Omeje, 2017). It is relevant in the Nepalese context, because it can be hard to get real industrial experience long distance to the place of attachment, lack of purposeful establishments, and rejections by industry. Getting the production unit stable can solve these problems. In order to deal with these problems, the goal of the operation is to give students a strong advantage, which is in line with what students want and what they think is best.

In the above context, the paper aims to explore the role of school production units in work-based learning to enhance the skills of learners by developing production-based learning models that are effective and sustainable learning through school production units. My current study answers the research question: How do TVET schools promote work-based learning to enhance learners' skills through school production units in Nepal? I attempted to address this question by using the constructivist approach and capability approaches to TVET.

Methods

In order to gather answers to the above research question, I used systematic review method. It is a review of published literature that addresses a specific research topic by gathering, selecting, and evaluating papers and, where appropriate, summarizing their findings. I gathered relevant literature, keeping in mind the search title and keywords “Work-Based Learning" and “School production unit” from online data source

in Google Scholar, Proquest, Nepjol, and Research4life. In total, 210 research papers, review articles, conference proceedings, and other technical reports were obtained from these open data sources. In the next steps, 40 articles are selected for systemic review, those published after 2010, full text obtainable, and in English language. These inclusion criteria are relevant to my study objectives because most of information were obtained to answer my research question. After compiling literature on the work-based learning and school production areas, I summed up the key findings from the perspective of work-based learning through school production unit.

Results

The findings of this review show that WBL through school production units in a technical and vocational education can be achieved through production-based learning and propose a set of production-based learning steps integrating it into the learning of skills, knowledge, and attitudes. Systemic review shows that production-based learning is important for leaners to enhance their work-based experiential learning, active learning, while the entrepreneurships learning skill and knowledge through school-production units. Likewise, the studies unveil that the application of work-based learning through school production units in TVET School has the potential to enhance employability skills, entrepreneurial spirit, creative and innovative abilities of students. It also increases income for sustainability of learning, and is a good platform for enhancing cooperation and collaboration abilities of the learners. What follows now is a detailed analysis of the findings of the studies.

Work-based Experiential Learning

The objective of the school-based production unit in the technical and vocational schools is the achievement of skills through relevant work experience in production-based learning steps. Ananda and Mukhadis (2016) argued that the school production unit is to offer direct working experience and on-the-job training that fosters students' opportunity to apply theoretical knowledge in a real workplace context. According to Chukwu and Omeje (2017), school-based production units are connected with expert professional courses and it is a best platform for alternative of students' industrial work experience. Students receive performance and learning experience through school production by focusing areas of expertise, collaboration, critical thinking, and communicating (Yudiono et al., 2019). Work experience in school production unit enhances the production skills needed in industry and other work situations with sufficient exposure to theory and practice. The school production unit involves learners producing goods and services as a part of their studies under the supervision with professional instructor.

Work-based Active Learning

In school production unit, systematic planned production steps are performed by the instructor to facilitate students' work-based active learning by participating and interacting with skill-based activities to produce a quality product as per market needs (Ganefri, 2013). Likewise, learners must have the ability to work in a team to accomplish shared outcomes (Agustina, 2019) that promote active learning. Production-based learning steps give students the chance to develop critical thinking skills. Active

participation is expected from the student by raising professional queries interrelated to their product, which will be manufactured or produced in school (Ganefri & Hidayat, 2015). These steps start with defining problems, then students conduct discussions with the instructor to ensure common solutions to the problems and set targets for production to be achieved (Agustina, 2019). The production-based learning steps that need to be adopted by the instructors to facilitate their students' learning actively, interactively, and practically. Such an active learning process contributes, as Yudiono et al. (2019) argue, integration of efficacy, feasibility, propriety, and accuracy in school production unit steps meet the expected criteria of 21st century learning skills.

WB Entrepreneurial Skill Learning

School production units lay emphasis on learning models, where students can undertake the production of standard quality goods or services as per business/industrial world and community needs (Yuliana & Hidayat, 2019) as a part of their studies under the supervision of a professional instructor. The school-based production unit assists learners and community investors to fire up and develop their new enterprise through the conveyance of instructive assets for capacity building and strengthening. School production unit facilitate work based learning for students and that it helps them work in working groups and train for teamwork, as well as raise interest in entrepreneurship (Kusumaningrum & Hidayat, 2015). This entrepreneurial interest will foster seriousness among students in the work-based entrepreneurial learning from the school production unit.

The students are trained to think critically, creatively, and confidently to deliver their ideas and explore how they might be able to produce items that will be made into a product plan through the production-based learning (Kusumaningrum et al., 2017). Students are involved in making business plans after making a product. In that step of production-based learning, they get an opportunity to practice entrepreneur activities like price, profit, margin, and competitor party or product. Therefore, with the help of work-based school production, students can develop their work-based entrepreneurships.

According to Ganefri et al., (2017), learners are trained to think critically, creatively, and boldly to convey ideas so that quality finished products would be made. After framing a product, strategic business plan and marketing are required. These activities will add learner experience and improve their entrepreneurial competences. Through the school production unit, WBL assists students in the transition from classroom learning at polytechnic institutions to work and improve their entrepreneurial spirit by providing opportunities to gain more confidence in their technical subjects. Entrepreneurial spirit prepares one for job creation rather than job searching. School-based production units provide linkages, context, and realization of the learning resources that are not acquired in the classroom.

Employability skills learning

Employability skills are a collection of significant abilities to deliver skilled workers with higher job prospects. Employability skills are multidimensional and has been drawn nearer through various

aspects, for example, soft skills, hard skills (Asonitou, 2015), good communications skills, impressive skills, critical thinking, professional morals, regulatory and general characteristics (Pouratashi & Zamani, 2019). With the help of the school production unit, students get knowledge, technical and generic skills, and develop a positive attitude towards work, while in a school-based production unit, educators can be involved in the advancement of these abilities, which empower students to acquire core generic skills, discipline specific skills, and personal attitude by working in workplaces (Holzer & Lerman, 2014). As a result, young creative, innovative, and talented graduates are attracted to and engaged actively in the production sector, where their potentials is greatly harnessed and more employment opportunities are created

Sustainable Work-based Learning

Production unit is expected to lead TVET institutions toward sustainability through income generation activities, such as selling their products or providing services to communities. School production units can be used as learning sources as well as funding sources in TVET institutes (Pratham & Triyono, 2018). Students can increase their income in cash by selling goods and services provided, commercializing knowledge and skills, etc that could be ploughed back into the system for better production capacity (Chukwu et al., 2019). The practice of production units over time will enable TVET institutions to stand the test of time, become sustainable, and reduce dependency on external resources, thus contributing to the national economy. It adheres to the concept of learn, earn, and pay, and is helpful for students having poor economic conditions and promoting sustainable TVET for them.

Collaborative Learning

Students work in teams in a school-based production unit to promote work-based learning. They learn collaboratively through their interactions in their group discussions. In the school production unit, students get a chance to interact and boost skills through the incorporation of collaborative and cooperative learning (Ganefri & Hidayat, 2015). The school production unit has a number of attributes that provide a diverse learning environment and prevent students from monotonous lecture-based classroom study. They help students become more active, participatory, and self-motivated. It helps learners improve their problem-solving skills as well as supports them to enhance their collaborative and cooperative capability with stakeholders, which improves decision-making ability and assists them in facing and solving complex problems and maintaining better communication and management (Yalçin et al., 2010). Learners improve their confidence and freedom to work in teams in the world of work by cooperating with each other on a predefined task assigned to their team under the supervision of the instructor. Work-based learning through school production units supports learner to enhance their societal relations and increases their attendance at work by reducing discipline problems in the classroom.

Discussion

This study reviewed empirical studies on work-based learning through school production units; along with their application and challenges. Using school-based production

units is one of the most effective ways of implementing WBL in TVET institutions as part of the constructivist approach. Piaget, Vygotsky, and Dewey were theorists who helped to legitimize the idea that learning and knowledge are constructed through experience and not acquired. The framework of constructivism encourages learners to actively construct and gain knowledge and skills, and reality is gained through a student's experience (Lee & Hannafin, 2016). According to Hedin (2010), important features of constructivist learning are that learners are active participants in the learning process; prior learning serves as the basis for current learning; and interactions lead to further learning and understanding where the focus of learning is on real-world issues rather than abstract concepts. Each of these characteristics provides a basis for work-based learning through the school production unit. In the same vein, Yoders (2014), from the constructive point of view, contends that learners reflect on lived experiences, interpret them, and form generalizations that influence their thoughts and actions. These are also considered impotent attributes in work-based learning in school production units.

According to Nikolova et al. (2013), WBL is responsible for conducting two-dimensional learning practices. The first is interactional, which can be obtained from interaction between students and their instructors. The second is performance-based learning, which can be gained by reflection followed by experimentation in the workplace. In a school-based learning model, there is active involvement of learners in teams under the supervision of their instructor, and they conduct their work to produce products. In this course, they practice interactional learning by working in teams under the guidance of the instructor. Similarly, according to Kolb (1984), important steps in the learning phase are reflection followed by vigorous experimentation, from which students can also conceptualize and experiment with their learning. Through reflective experimentation, learners enrich their knowledge and skills in school production units. Therefore, WBL from school production units can be viewed as a constructivist approach where knowledge and skills can be constructed through experiences.

Conclusion

From this systematic review, it is concluded that the school production unit is one of the important learning approaches in work-based learning which focuses more on learners in the work places of polytechnics. Students of TVET can enhance their work-based experiential learning, work-based active learning, employability skills, entrepreneurship skills, learning sustainability, and increased cooperation/collaboration learning skills from school production unit. Every polytechnic has the capacity to run at least one production unit according to their trade so as to properly link their learning to the demands of the market and societal needs. A production-based learning in TVET can help students enter the workplace to experience work-based learning, and they will be able to develop their skills, participate actively in learning and maintain good morale.

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