



The New Paradigm of Technical and Vocational Education and Training (TVET)

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Abstrak

Dalam Kerangka Pemikiran Inovasi Pembelajaran. Pendidikan dan teknologi dan Kejuruan (TVET) belum melibatkan situasi yang signifikan dalam tahap instruktif kami, sementara dunia terus berubah seiring dengan setiap permintaan baru. Jaringan juga berkembang mengingat bahwa jenis pekerjaan tertentu tiba-tiba berkurang dan kemudian menghilang. Oleh karena itu, muncullah jenis-jenis pekerjaan baru dengan tuntutan-tuntutan barunya. Pada dasarnya ada tiga kesulitan yang harus diperhatikan bersama agar TVET tetap berperan besar di abad mendatang, misalnya TVET harus memusatkan perhatian pada cara terbaik untuk melayani siswa, iklim harus memberikan peluang instruktif terbaik, dan mengumpulkan dukungan. di dalam wilayah lokal edukatif yang lebih besar tentang pentingnya TVET sebagai komponen struktur edukatif. Pola perubahan TVET baru membutuhkan pengerahan tenaga yang teliti dan tulus. Derajat pembelajaran, diperlukan pergeseran paradigma dalam memainkan perkembangan pembelajaran. Artikel ini mencoba memberikan kerangka acuan untuk mengembangkan pembelajaran inovatif, dengan memperhatikan kecenderungan-kecenderungan yang terjadi dalam pendidikan teknologi dan kejuruan.

Kata kunci: Paradigma Baru, Pendidikan Teknologi dan kejuruan, TVET

Abstract

The New Paradigm of Technical and Vocational Education and Training: Framework Thought Of Learning Innovation. Innovative and Technical and Vocational Education and Training (TVET) has not involved a significant situation in our instructive stage, while the world keeps on changing alongside every one of the new requests. Networks are likewise expanding mindful that specific sorts of occupations abruptly diminished and afterward vanished. It follows on that the arising new sorts of work with his new charges. There are three difficulties to be looked all together for the TVET keep on assuming a huge part in the coming century, for example, TVET should zero in on how best to serve the students, the climate should give the best instructive chances, and assemble support in inside the bigger instructive local area about the significance of TVET as a component of instructive structures. The pattern of new TVET change exertion requires a thorough and sincere. The degree of learning, paradigmatic shift needed in playing out the learning developments.

Keywords: New Paradigm, Education, Technology, Vocational, TVET

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INTRODUCTION

In the era of the XXI century, there is growing awareness among the people that in the future the types of jobs that will grow require skills and have different characteristics. These jobs require not only job-specific skills but also soft skills and competencies that will help the workforce to continue their education and training throughout their careers, but in reality, in the midst of increasingly rapid changes, educational institutions (especially universities) are actually known to be the most conservative and resistant to change, so that teaching institutions no longer lead change but are instead carried away by change. Like a battery, the performance of LPTK that carries out educational missions, especially those of a technological and professional nature, is in a discharge mode (discharge mode) so they can remain sterile (quality care) (Budgell, 2021). Similarly, vocational education deals with related issues, and optional schools are not ideal in addressing their necessities since schools are intended to address the issues of the modern world.

The changing necessities of the modern world from many new sorts of work, gives rise to new trends in the development of increasingly convergent knowledge. New types of jobs require multidisciplinary skills, and almost no jobs require only specific skills. The development trend of science and technology is increasingly converging, the fields of science and industry interact, integrate and give birth to a new convergence of science and technology. This means that educational institutions are forced to seek total change. Reforming curricula and innovating the way we learn is an important part of this step towards inclusive change.

This article attempts to provide a frame of reference for the development of innovative learning, taking into account the trends occurring in technology and vocational education.

RESEARCH METHODS

This article writing method uses the literature review method (library research). Library research is a type of research that is used in the collection of information and data in depth through various literature, books, notes, magazines, other references, as well as the results of previous relevant research, to get answers and theoretical foundations on the problem to be studied.

RESULTS AND DISCUSSIONS

New Trends in Technology and Vocational Education

Public perception about vocational education which is designed to enter the job market, especially the professional path, still places professional education only for underprivileged students and even mentions that vocational education is for the second tier students (Felder 1993). Parents still believe that a good job can only be obtained through a university education. Vocational education or better known as TVET (Technical and Vocational Education and Training) must continue to occupy the best position in the world of education today. According to Budiastuti (2015), there are at least three main initiatives that must be taken if technology and vocational education are to become a meaningful component of the global education landscape; alliances with established industries, professional associations, and government agencies. Alliances are formed with industry, professional associations, and other organizations that will make influential decisions aimed at influencing or changing public perceptions of the merits of engineering work. Second, technology and vocational education must be at the core of the basic education curriculum, where children's learning motivation is not contaminated and parental involvement in their children's schools tends to be very good. Technology and vocational education can form the basis of the core curriculum by providing engaging and interdisciplinary learning experiences that foster creativity, develop motor skills, and understand the fundamentals of science through learning the application of technology. Third, technology and vocational

education must be able to better serve every child, whether graduated or not. Aprianto et al (2020) in their research say that for graduates from vocational schools to be absorbed by industry, it is necessary to make efforts from schools to make changes, one of which is by revising the curriculum to suit industry needs. This will create opportunities for technology and vocational education to provide technical or vocational skills for those wishing to enter the labor market and provide relevant experience for those wishing to pursue further education.

Indarta (2021) points out that technological and vocational challenges must continue to develop dynamically and adaptively so as not to lose to change. Challenges in the 21st century include; 1) information technology security issues; 2) reliability and stability of production machines; 3) lack of adequate skills; 4) reluctance to change from stakeholders; and 5) the loss of many jobs because it has turned into automation that uses the role of technology. This condition raises speculation that in the future there will be several professions that will be lost or replaced by technology (Verawadina et al., 2019) Technological and vocational education must focus on how to create graduates who can compete in the world of work and the industrial world. In addition, the role of the environment must also provide the best educational opportunities. The best vocational education can be structured in an interdisciplinary approach and activity-based learning environment that gives students opportunities to apply knowledge to solve practical and technological problems. Interdisciplinary and activity-based education will provide students with the opportunity to integrate knowledge from other subject areas and related studies. It also means placing student learning activities in a real-world context. Building relationships and the wider education community will result in a big change for vocational education and also as part of the educational structure.

Technological and vocational education is an integral part of the world of education as a whole. This is because the field of vocational education has penetrated all sectors of human life. Technological and vocational education must have characteristics that include; 1) oriented to the world of industry, business, and the world of work; 3) curriculum focus on psychomotor, affective, and cognitive aspects; 4) based on multicompetence; 5) sensitivity to changes and developments in the Business World, Industry World, and the World of Work; 6) requires adequate facilities and infrastructure; 7) have 21st-century skills. In addition, the importance of implementing innovative literacy-based learning is also very necessary in preparing superior human resources for the future (Afandi et al., 2019). The new orientation of vocational education leads as an educational institution for life skills, competency-oriented education, and authentic and contextual learning that can produce valuable and meaningful products for students, and the provision of broad-based educational administrations through different channels and levels of instruction that are adaptable, multi-section multi - exit (Kurniawan, et, al 2019).

Technological and vocational education graduates are expected to be able to produce valuable products, demanding a rich learning environment (rich environment), which can provide learning experiences that produce competencies in an integrative way. A learning environment that accommodates learning situations, environments, content, and tasks that are relevant, realistic, authentic, and presents the complexities of the business world, industry, and the world of work, soft skills development both individually, socially, collaboratively, and experientially, skills in solving problems, higher-order thinking, and deep understanding are emphasized, providing opportunities for students to learn in apprenticeships where there is increased task complexity, knowledge and skill acquisition.

Therefore, Niittylahti (2021) asserts that technological and vocational education must: (1) expand the intellectual foundation underlying the design, manufacture, construction, communication, transportation, engineering, and architecture that fills the space of natural and world control techniques. man-made; (2) explain in detail the practice and body of technological knowledge so that it is easily recognized and as a basis for learning planning resources; (3) develop a comprehensive and unique curriculum development strategy to

integrate practice and knowledge with contemporary understanding of how learners acquire knowledge and skills; (4) explore individual and group differences, so that appropriate programs may be designed integrally to their cultural and individual frameworks; and (5) assessing the contribution of technological and vocational studies within and beyond contemporary society with a clear and critical vision for achieving the quality of life of future generations. The development of communication technology that has expanded communication networks without limits, and the extraordinary progress of information technology that allows the processing of data in imperative quantities, will give birth to its paradigm in the development of learning technology.

Technological and vocational education has different characteristics from education in general. Education requires the right strategy to achieve optimal results (Soleh, 2019). Efforts to minimize the problem of 'skill mismatch' require a mechanism that connects the education curriculum in schools with what is expected according to the demands of the skill of the business world and the modern world. Thus, the sort of work skill required for a specific occupation is acclimated to the training taken by an understudy (Sulistiyo & Kustono, 2018). In carrying out its activities, the world of work requires trained individuals as resources for the progress and growth of its business. Human resources in a company play a role in spurring the performance and performance of the entire system in it (Apriliani, 2020). Strong support can be applied and vocational education graduates who have competencies that match the needs of the job market.

The idea of this schooling should be perceived by the partners. Numerous nations have not prevailed concerning executing this instruction because their partners don't comprehend the idea (Suharno et al., 2020). Technological and vocational education makes a significant contribution to the economic competitiveness and well-being of the knowledge-based global economy. The role of technology and vocational education can create an adequate level of absorption in the world of work and is a fundamental part of a country's ability to build and grow absorption at the national or specific organizational level. The success of technology transfer into the receiving organization is highly dependent on the type of policies adopted in the education and training of all groups and individuals (Heiden et al., 2015). The development of technology, the global economy, and human life greatly affect various sectors of life. Technological and vocational education (TVET) must also be able to adapt to the times.

Learning Innovation Framework

Learning is currently emphasized on how learning is capable of optimal self-potential in students, able to optimize critical, creative, communicative, and collaborative thinking skills with the environment and all elements of learning (Gunawan & Darmani, 2018). All those are not possible without a learning innovation. Learning innovation Technology and vocational education plays a very important role in changing the learning paradigm from behavioristic to constructivist (Degeng, 2015).

Learning is a manifestation of the formation of oneself as a whole which in the framework of active learning is referred to as a process of developing all aspects of potential in the context of fulfilling all human commitments as individuals and as members of groups (family, community, nation-state, and between nations) (Miller, 2004)). In the framework of thinking, learning must rely on four pillars, namely learning to know, learning to do, and learning to live together, to get to learn to be (Delors, 1999). By using a competency and life skills-based curriculum operational reference tool, and referring to the trend of technological and vocational education that has shifted orientation, technological and vocational learning innovations can be carried out by using some learning indicators with a new paradigm as stated by Jones, (1994) as engaged learning, as an innovation framework.

From the view that knowledge is objective, definite, and permanent to knowledge that is non-objective, temporary, and ever-changing; from the assumption that learning is the acquisition of knowledge to learning is the meaning of knowledge; from interpreting teaching as an activity of transfer of knowledge to those who learn to the meaning of teaching as meaning; from the mind which has a function as a means to transfer

knowledge to a mind that cooperates with what it receives so that it gives rise to something different. Classes that organize constructively provide more space for students so that they can develop their knowledge more independently through interaction with peers (Dagar, Yadaf, 2016). By collaboratively completing tasks together with more competent ones, less competent students become proficient independently. Furthermore, Dagar & Yadav (2016) allocate learning time, 70% of the time should be spent on student-centered activities, such as presentations and group work, and the remaining 30% of the time on the teacher where teacher-student interactions are facilitative. Learning innovation departs from problems in the classroom which is the most dominant activity in the educational process can be said to be successful depending on the ability of the teacher starting from how to prepare for learning, how effective the learning process is, how teachers teach and how teachers develop learning outcomes. For this reason, the role of the teacher as an "innovator" in learning is very important. Teachers must be able to create learning methods or learning models into an innovative learning design.

Ainurrahman (2009) defines the learning model as a conceptual framework in which learning experiences for certain learning objectives are procedurally and systematically organized so that they become guidelines for planning and implementing learning activities for teachers or learning designers. Meanwhile, Al-Tabany, (2014) argues that the learning model has a more comprehensive perspective broad when compared to strategies, procedures, learning methods. The meaning of the innovative learning model means that the learning model chosen and applied by the teacher can guide students in obtaining learning progress both from the aspect of the process and the results (Priadi et al., 2021). Thus, in this model, teachers are encouraged to upgrade and update their knowledge, skills and develop their bright ideas. According to Schechter (2011), that if the innovative learning model is carried out by managing technology-based learning media, it is expected as an effort to create a balance that the students' right brain and left brain work to foster self-confidence. New media have the characteristics of being related or related to each other, having broad access to both senders and recipients of messages, having various uses, being open and everywhere (Bayu Saputra et al., 2020) Therefore, the application of innovative learning models are expected to be able to give birth to critical thinking so that new positive ideas emerge, can develop creativity, problem-solving skills and face the challenges of the 21st century. One of the current learning innovations is by creating or utilizing technology based on Augmented Reality (AR). Augmented Reality technology can be used as a learning medium (Damayanti et al, 2021).

The development of learning models in technology and vocational education is learning that combines various things which include knowledge, skills, attitudes, and mastery of information technology (Kemendikbud, 2017). The development of learning models in technology and vocational education is learning that combines various things which include knowledge, skills, attitudes, and mastery of information technology (Kemendikbud, 2017). What needs to be developed are the 4Cs, namely: (1) competence for critical thinking and competence in solving problems, (2) ability in communication, (3) ability for creativity and innovation, and (4) ability to collaborate. Innovative learning models are a student in nature. However, in the practice of learning in many schools the learning model implemented is still a conventional learning model where teachers are more dominant than students (teacher-centered), they apply monotonous learning methods, usually in the form of lectures that extend the time students feel bored and not comfortable.

Variations of learning models and strategies can be developed with various innovations. However, there are basic principles for learning innovation that distinguish it from traditional learning. The principles are interactive and generative. Interactive means that learning involves students actively. Generative means learning that encourages students to construct and support knowledge in a meaningful way by providing experiences and learning environments that promote deeper learning. Teach also students who solve problems

actively, conduct a meaningful inquiry, engage in reflection, and build a repertoire of effective learning strategies in different social contexts.

Learning Context

In this new paradigm, the class is no longer seen as an individual opening with an individual spirit, but as a learning community with social ecology. Thus, learning takes place in the context of a learning, collaborative, and empathetic society. (1) Learning community. The learning society rejects individual fragmentation and competition and places students as more collaborative learners. (2) Collaborative. In a learning society, intelligence is shared among all members. Collaborative classrooms, schools, and communities that encourage all students to ask questions, find problems, speak or express opinions at the appropriate time, participate in measurement and in setting goals, standards, and benchmarks; have conversations with adults about things related to the workplace inside and outside of school; and engage in entrepreneurial activities. (3) Empathy. Browse learning communities for strategies to build learning for all members. This strategy is especially important for learning situations where members have a different basic knowledge.

Grouping Pattern

The way of grouping learning also uses several principles, namely heterogeneous, flexible, and fair (equitable). The heterogeneous group included men and women, and a mix of culture, learning style, ability, economic status, and age. This mix presents background knowledge and different perspectives. Flexible groups are arranged according to learning objectives. This flexibility allows teachers to use heterogeneous groups as often as possible and form new groups, usually for a short period, depending on needs. The use of both heterogeneous and flexible groups is one of the many goals of fair classification. This will provide increased learning opportunities for all students.

Teacher's Role

The fundamental change in this new paradigm is regarding the role of the teacher. Teachers can play a dual role, and not only as instructors, but more importantly, they act as facilitators, collaborators, and mentors. As facilitators, teachers provide a rich learning environment, experience, and activity by offering opportunities for collaborative work, problem-solving, authentic assignments, and sharing of knowledge and responsibilities. In collaborative classrooms, teachers must act as mentors in a complex role that combines roles as class composer, mediator, model, and coach. When students learn, the teacher must act as a regulator of information levels and encourage according to student needs, and help students relate new information to their prior knowledge, refine their problem-solving strategies, and guide learning how to learn. As learning partners/collaborators, teachers and students participate in joint investigative activities. With the help of technology, students may become teachers, and vice versa, teachers become students. The teacher acts as a student learning partner.

CONCLUSION

In the position that technology and vocational education have not yet occupied a significant position in our educational stage, the world is constantly changing, accompanied by all its new demands. Changes in the demands of human skills are in line with the growth of new types of work. There is a new trend in the evolution of knowledge that is increasingly convergent as a result of new types of jobs that require multidisciplinary skills, and almost no more jobs that require solely specific skills. With the tendency of science and technology to develop more and more convergently, various branches and fields of science interact and integrate and give birth to new knowledge and technology convergences. This means that educational institutions are required to make comprehensive change efforts that do not rely enough on the new

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paradigm of education. The use of a new paradigm as a framework for curriculum and learning innovation is the most important part of efforts towards comprehensive change.

The comprehensive change will only take place if technological and vocational learning innovations are carried out using a number of learning indicators with a new paradigm. Indicators of learning innovation with the new paradigm include various substantive matters regarding the nature of learning, namely (1) technology and vocational education should be oriented to the industrial world, business world, and the world of work, (2) characteristics of learning tasks, (3) learning models and strategies, (4) measurement of learning outcomes, (5) learning context, (6) grouping patterns, (7) teacher's role, and (8) student's role.

Student Role

Instead, students act as researchers, apprentices, and builders of knowledge and skills. As researchers, students research concepts and relate and apply skills by interacting with the physical world, materials, technology, and other people. Discovery-oriented exploration will provide opportunities for students to make decisions about the description of an object, event, person, or concept. As cognitive apprentices, students learn cognitively when they observe, apply and refine their cognitive processes through thinking together with real-world practitioners. In this model, students practice in a variety of situations and tasks and articulate their experiences. As knowledge producers, students produce products for themselves and their communities in the form of a synthesis of knowledge and skills. Through the use of technology, students make a significant contribution in increasing their repertoire of knowledge.

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