International Journal of Multicultural and Multireligious Understanding

http://ijmmu.com
editor@ijmmu.com
ISSN 2364-5369
Volume 10, Issue 2
February, 2023
Pages: 275-281

Fine Arts Curriculum Development Strategies in Facing the Challenges of the Industrial Revolution 4.0 at Vocation High School

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http://dx.doi.org/10.18415/ijmmu.v10i2.4466

Abstract

Fine arts education in cultural arts learning is closely related to skills. To be able to keep up with the flow of the industrial revolution 4.0, students' abilities must be able to synergize with the development of educational progress. Education with curriculum 4.0 is a guideline for integrating education in accordance with the era of the industrial revolution 4.0. Adequate skills are needed in the ability to digitize technology as a way to produce competent people who are ready to compete with the industry. Therefore, the right strategy is needed in curriculum development as a readiness to face it. The fine arts learning strategies to face the challenges of the industrial revolution era will be discussed in the introduction, discussion, and conclusion. In the discussion there are two topics of study, the first is about the 4.0 education curriculum which contains the context and objectives as well as the design of the 4.0 curriculum framework and the second is about learning strategies in implementing the art education curriculum as a tool Vocation High School such as embedding technical multidiscipline in the curriculum, embedding non-technical courses into the curriculum, offering problem-based learning, updating teacher skills, promoting innovation in teaching, and organizing collective training and apprenticeship programs.

Keywords: *Curriculum; Education; Education 4.0 Curriculum; Fine Arts*

Introduction

The curriculum is a guideline for organizing learning activities in education. The biggest factor in the success of the learning curriculum is the suitability of competence and education personnel. Educator readiness is a determining factor for success. The curriculum for educators is a guideline for teaching, in which it has a clear foundation on how the learning process and the material that must be given to students. To produce a generation that is competent, superior, and able to compete in various industrial sectors is the biggest challenge as an educator. In the world of education, it will continue to develop and evolve to meet educational standards. One of the realizations to be able to fulfill it is through education 4.0. Education 4.0 is a response to the needs of the industrial revolution 4.0 where humans and technology are aligned to create new opportunities creatively and innovatively (Lase, 2019: 29).

Nowadays, there is indeed a shift in learning, where student learning is closer to digital technology. However, the problem is that the digital era does not necessarily guarantee that an educator or student understands digital well. Digital capabilities are generally a medium for student entertainment but

it is not easy to make graduates competent in their fields. Like SMK graduates, many are unemployed due to a lack of skills. Many graduates are not ready to work directly in the industry. In various places in Indonesia, there are still problems with the system originating from a feudalistic educator or the lack of digital knowledge of students so it will be difficult to keep up with the ever-evolving global industry. It takes the right strategy in curriculum development to make educators more mature in facing the challenges of globalization in this industrial revolution. Not only educators but all sectors in educational institutions must understand so that it will be easy to follow the flow of education 4.0.

Research Methods

The method used in this article uses library research, which is a method of data collection by understanding and studying theories from various kinds of literature related to the research.Method of collecting data through understanding by studying a number of theories from various kinds of literature related to the research. There are four stages of library study in research according to Zed (2004, pp. 5-12), namely preparing a bibliography in work, organizing time and reading and recording research materials, collecting data by searching for sources and reconstructing them from various sources such as books, journals, and other sources. The last stage is reconstructing from various sources such as books, journals, and existing research, and research. The data analysis method used is content analysis and descriptive analysis. Library materials obtained from various references were analyzed critically and deeply in order to support propositions and ideas. ideas.

Discussion and Results

A. Education 4.0 Curriculum Guidelines

1. Context and Purpose

The development of the art education curriculum strategy in the 4.0 era is adapted from the 4.0 education curriculum guidelines that have been implemented in the European Union in 2019. Progress in the industrial sector in the European Union has inevitably brought all areas of society including education to follow higher industrial competitiveness in sustainable growth and job creation, to improve the welfare of its people. The domain of AMT (Advanced Manufacturing Technologies), including robotics and other forms of automation as well as material processing devices and machines, is increasing its capabilities in extending its potential applications to manufacturing opportunities, which are suitable and SME-friendly. Ongoing developments have direct implications for skills requirements. In particular, there is a need to reconsider the current approach to AMT professional education and training in Indonesia to develop a model that is better aligned with Indonesia's employer and future needs.

There are four issues that are factors why it is necessary to integrate the curriculum and industry 4.0, which will be called curriculum 4.0, (Lukita et al: 2020: 306), namely: (1) The increasing development of websites and e-commerce in online sales as well as HR challenges in facing the world of digitization (coding and programming); (2). Need for competition in the field of data analytics; (3) Need expertise in the field of artificial intelligence; that is, software that can help HR think; (4) Human resources are needed who can develop flexible and sustainable soft skills systems. This is in line with the development of industry 4.0 which will continue to grow sustainably.

The education 4.0 curriculum aims to contribute to improving the quality and relevance of existing curricula and to promote better cooperation between industry and education and training organizations to align education in AMT training with the needs of the new Industrial era (Pwc, 2020:11). This curriculum initiative focuses on vocational education and training, higher education and on-the-job training for AMTs.

It targets all stakeholder groups that have a direct influence on the education and training system at various levels: teachers/trainers and learners at the micro (classroom) level; managers of education and training institutions at the organizational level; and policymakers and support structures such as industry associations, cluster organizations and trade unions at the macro (inter-organizational, national and EU levels). The initiative follows a holistic approach and aims to address all key stakeholder groups by defining roles and activities for each of these groups. This approach aims to address the identified challenges effectively; all key stakeholder groups need to join forces.

2. Design of Curriculum Framework 4.0

A new approach to education and training implies the design of a new curriculum framework where it is necessary to create an educational culture and learning environment that will lead to the development of highly skilled, emotionally intelligent, innovative, and flexible KET and AMT professionals, suitable to address the challenges of the 21st century. Based on the experience of the European Union 4.0 education curriculum (2020) some illustrative key principles of the 4.0 curriculum framework include the following elements:

1) Student-centered approach: students/learners need to be placed at the center of curriculum design, to foster their intrinsic motivation and to encourage lifelong learning:
   a. Involve students in designing their learning program.
   b. Involve students in assessing their own progress and experiences.
   c. Involving students in assessing teacher performance.

2) Multidisciplinary orientation: enhance KETS/AMT (Advanced Manufacturing Technologies) related technical courses with elements that stimulate analytical and critical thinking, creativity, business, entrepreneurship, employability, and social and ethical perspectives for science and technology.
3) Problem (challenge) learning is driven by student activities to work on difficult real-life problems and challenges for which there are no definitive answers; this approach allows students
4) contextualize their theoretical learning in terms of how it will be useful in the world around them.
5) Collaborative (collective) learning: encourages collaborative working in multidisciplinary teams, and promotes the development of communication skills.
6) Technology-based learning: encourages the use of technology and software applications for learning (e.g. MOOCs, m-learning, gamification, augmented and virtual reality, AI, etc.).
7) Experiential learning: facilitates the acquisition of hands-on experience:
   a. By building projects and problems around real-life cases and stimulating the acquisition of hands-on experience.
   b. Incorporating work placements/internships (gaining real work experience) into the curriculum.
   c. Involving employers and professional organizations in curriculum development

8) Continuous learning (cultivation of lifelong learners): recognizing that formal education is only part of a continuous learning trajectory; encouraging the use of other types of informal learning including open source learning and extra-curricular activities; equipping students with the skills and tools to continue their skill upgrading throughout their careers (lifelong learning).
9) Learning ecosystem approach: connecting learners with employers and other key stakeholders through project work, industrial placements, and so on.

B. Education 4.0 Curriculum Learning Strategy

High-quality Arts Education requires highly skilled professional art teachers as well as generalist teachers (Unesco, 2006:8). Skills in developing learning frameworks and guidelines are key to success in education. Therefore, an appropriate strategy is needed before the follow-up implementation of education.

The implementation of the curriculum adopted from the 2019 EU 4.0 education curriculum contains learning strategies that will be adapted to the conditions and level of educational needs in Indonesia in fine arts education at the SMK level which will be described as follows (Pwc, 2020: 67):

1.Embedding Technical Multidisciplinarity in the Curriculum

Multidisciplinarity is the merging of several disciplines to jointly address a particular problem. Multidisciplinary can be understood as a way of discussing problems that involve several sciences to discuss the same topic (Sudikan, 2016). Training students in multiple disciplines simultaneously so that they can work across those disciplines (e.g. design in fine arts combined with mechatronics or mechanics, electricity, and systems engineering or design creation utilizing various software taught in information and communication technology).

To ensure multidisciplinarity in education, the concept of "dual learning" or a minimum of two disciplines can be promoted, at least mandatory for vocational education. Dual learning implies combining education with work experience, thus gaining experience in an actual manufacturing environment before entering the labor market.

In fine arts, it is not only relying on manual skills such as drawing, painting, and handicrafts but collaborating with technological advances in the art such as digital skills in design. Students are directed to design directly in a project, preferably a direct design project with a real job. Digital skills in the industrial revolution are in line with the development of technology and art. Technology and art are interrelated, if students are good at art but not good at digital skills, students in the future will be left behind compared to students who are competent in technology (digital design) but lack in aesthetics, in the long run, if he can maintain and develop again he will be easy and mature in competing in the industrial era. So both must be synchronized and able to collaborate. At least using two disciplines of art and technology. However, it is possible to use more than two disciplines or collaborate with other sciences other than technology that are appropriate for learning.

2.Embedding Non-Technical Courses into the Curriculum

Offer non-technical courses for students in various skill sectors such as workshops (skills and crafts), management, entrepreneurship, communication, innovation product-related competencies, and emotional intelligence skills.

In non-technical courses, it is mandatory to add Arts to the curriculum of the learning course because competencies derived from STEM are not sufficient for KETs (Key Enabling Technology). STEAM aims to increase student engagement, creativity, innovation, problem-solving skills, and other cognitive benefits (Gunawan, 2016:97).

KET (Key Enabling Technology) requires STEAM (Science, Technology, Engineering, Mathematics, and Art), Art is included which refers to creativity that can lead to innovation. Therefore, art and creativity must also be embedded in the technical curriculum.

The learning collaborates with the fields of science, technology, engineering, mathematics, and art. Regarding art here, it is not from the fine arts learning category of cultural arts but in the arts outside of learning that strengthens and provides understanding and skills outside the field as a reinforcement of skills. Students are invited to be more friendly with technology, and engineering through training courses organized at school.

In workshops and crafts, it collaborated with management systems and entrepreneurship so that it will train students to be able to innovate products and be able to market them by utilizing digital

techniques and technology. They will learn digital marketing, management systems, and digital illustration. In terms of communication courses, students can do for students who are good at communicating or less good. If the student is good at eating he will be processed again to be better while the shy student will be more directed in communicating. Skills outside the subject area will be very useful in this industrial revolution competition.

3. Offering Problem-Based Learning

Building a curriculum to train a problem-solving mindset, i.e. training the ability to think and act from the perspective of a problem, approaching the same problem from multiple angles, taking risks with approaches and solutions that have never been applied or tried before, and constantly striving to improve the current situation or condition, problem-based learning needs to be linked to real-life problems.

In learning fine arts, you can use the Project Based Learning Model (PjBL), which is a learning method that uses projects/activities as a medium (Kemendikbud, 2013: 571). Learners conduct exploration, assessment, interpretation, synthesis, and information to produce various forms of learning outcomes. As an institution that functions to prepare graduates to work in the business world and industry, it must be able to equip its students with the "standardized competencies" needed to work in their respective fields. With "production-based" learning, students in SMK are introduced to the real atmosphere and meaning of work in the world of work. Thus, a suitable learning model for SMK is project-based learning.

Here are 5 strategies for using the problem-based learning (PjBL) model (Permendikbud, 2016: 572): 1) Problems as a study; 2) Problems as an exploration of understanding; 3) Problems as examples; 4) Problems as an integral part of the process; 5) Problems as a stimulus for authentic activities.

4. Renewal of Teacher Skills

Efforts for skills are not only for students but as educational facilitators teachers must be able to provide updates in learning. Educators must improve and send education personnel to companies to find out the latest developments, as well as invite people from companies to teach in the classroom who can provide information, knowledge, and motivation to students.

These approaches require teachers to be knowledgeable about a wide range of topics and be prepared to make on-the-spot decisions as lesson plans progress. This makes classroom management more challenging than ever. One way to support teachers in implementing these approaches is to facilitate their collaboration and allow them to share their experiences.

What teachers need is much stronger training and support than they receive, including specific lesson plans that deal with the high cognitive demands and potential classroom management issues of using, for example, student-centered methods.

In addition, it would not be enough to invest heavily in curriculum and human resources without also investing in assessment to evaluate what was or was not achieved as a result of the study/training. The potential exists today to produce assessments that measure critical skills and are also reliable and comparable between students and educational institutions. However, efforts to assess these skills are still in their infancy. Efforts to create more formalized common standards that will help address some of the challenges by focusing efforts in the same direction. The entire learning ecosystem needs to be kept in mind and the above-mentioned progress should fit into the overall lifelong learning paradigm.

5. Promote Innovation in Teaching (Including Technology-Enhanced Learning)

Rewarding educational institutions and teachers for introducing innovative approaches; these aspects need to be incorporated into assessment schemes for organizations and individuals. The promotion of innovation in teaching can mutually motivate teachers to innovatThe promotionion of innovation can be in the form of research and product development that can be utilized both practically and theoretically. Teachers are also obliged to promote children's competencies through cooperating with industry partners.

6. Organizing Collective Training and Apprenticeship Programs

Training and apprenticeship programs by joining forces with other companies and educators, as well as other relevant stakeholders) to offer training programs to KET professionals that will result in industry-wide recognized certificates; etc.

When further developing key directions for action and curriculum guidelines, it is important to remember that learning is a continuous process. Formal education of KET/AMT professionals (including VET and higher education) is 'only' one step in the lifelong learning trajectory. This needs to be complemented by regular on-the-job training (both formal and informal), and thus needs to be considered in the context of learning.

Conclusion and Suggestions

Educational curriculum development in the field of fine arts adopted from the 2019 EU 4.0 curriculum guidelines is very useful if it can be applied. With the right curriculum development strategy, it can make SMK graduates more skilled, superior, critical, broad-minded, and mature and become graduates who are ready for the industrial era. The understanding of skill improvement outside of learning (courses) can also help students to be able to develop creative innovative products and improve abilities in other fields such as management, entrepreneurship, and communication. Learning outside other dimensions such as learning with STEAM and multidisciplinary approaches can also make students closer to fields such as science, technology, engineering, art, mathematics, and other dimensions of science. Students and teachers become closer to digital technology and understand its use. That way it is expected to be able to face challenges not only in the industrial era 4.0 but also in 5.0. However, to be able to meet the desired targets, the preparation of appropriate and mature learning plans is the key to success in implementing the 4.0 education curriculum.

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