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Project-Based Learning Through Digital Printing Techniques To Improve Students' Local Cultural Innovation Creativity

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ABSTRAK

Penyelarasan kebutuhan peserta didik, SMK dan dunia kerja, banyak di antaranya yang mengalami kegagalan karena rendahnya penguasaan kecakapan soft skills Tujuan dari penelitian ini, untuk menggambarkan model Pembelajaran Berbasis Projek (PjBL) dalam pembuatan produk batik bermotif batik merak ngibing pada warisan budaya lokal Tasikmalaya, dan Pendidikan Vokasional Menengah (SMK). Penelitian ini penulis akan merancang motif yang terinspirasi dari motif merak ngibing yang dipadukan dengan batik Tasikmalaya untuk wanita dewasa dengan teknik digital printing sehingga generasi muda lebih mengenal dan tertarik dengan batik Tasikmalaya. Pembuatan motif ini selanjutnya akan dibuat ke dalam lembaran kain katun primissima bisa digunakan untuk memenuhi kebutuhan fesyen target pasar. Penelitian ini menggunakan mix methode dengan pendekatan quasi eksperimen , serta teknik pengumpulan data menggunakan angket, observasi, wawancara mendalam dan dokumentasi. Hasil kajian penelitian ini menggambarkan bahwa dalam pewarisan budaya lokal di SMK menggunakan model PJBL dalam mewariskan kreatifitas dan inovasi kriya dan kreasi batik/tekstil secara turun temurun. Corak motif batik Tasikmalaya memiliki dayatarik tersendiri seperti halnya berkarakter cantik dan indah dengan perpaduan warna cerah dan juga corak yang berasal dari flora-fauna. Nilai filosofis yang terkandung dari batik ini yaitu burung merak melambangkan keindahan alam dengan aneka flora dan faunanya. Ngibing melambangkan adat dan budaya masyarakat yang rukun dan damai. Melalui perpaduan batik Tasikmalaya dengan gaya streetstyle diharapkan dapat menghasilkan karya yang inovatif serta penyampaian makna dari filosofi yang terkandung. Nilai lebih rancangan ini tetap mempertahankan hasil karya seni Indonesia yang menjadikan rancangan busana menarik dengan gaya masa kini yang mempunyai nilai lebih dimata dunia.

ABSTRACT

Aligning the needs of students, vocational schools and the world of work, many of whom have failed due to low mastery of soft skills. The purpose of this study, to describe the Project-Based Learning (PjBL) model in the manufacture of batik products with the motif of the peacock ngibing batik on the local cultural heritage of Tasikmalaya, and Secondary Vocational Education (SMK). In this study, the author will design a motif inspired by the ngibing peacock motif combined with Tasikmalaya batik for adult women with digital printing techniques so that the younger generation is more familiar with and interested in Tasikmalaya batik. The making of this motif will then be made into sheets of primissima cotton cloth that can be used to meet the fashion needs of the target market. This study uses a mix method with a quasi-experimental approach, as well as data collection techniques using questionnaires, observations, in-depth interviews and documentation. The results of this research study illustrate that the inheritance of local culture in SMK uses the PJBL model in passing down creativity and innovation of crafts and batik/textile creations from generation to generation. The Tasikmalaya batik pattern has its own charm as well as a beautiful and beautiful character with a combination of bright colors and patterns derived from flora and fauna. The philosophical value contained in this batik is that the peacock symbolizes the beauty of nature with its various flora and fauna. Ngibing symbolizes the customs and culture of a harmonious and peaceful society. Through the combination of Tasikmalaya batik with street style, it is hoped that it will produce innovative works and convey the meaning of the philosophy contained in it. The added value of this design is that it maintains the work of Indonesian art which makes attractive fashion designs with contemporary styles that have more value in the eyes of the world.

1. INTRODUCTION

Since 2012 the higher education curriculum in Indonesia has changed using the 2013 Curriculum (Anwar et al., 2018; Sakti, 2019). The change stems from the concept of four pillars of education, namely learning to know (learning to know), learning to do (learning to do), learning to be (learning to be), and learning to live (learning to live). For 2013 Curriculum, learning outcomes are expected to include not only knowledge

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but also attitudes and life skills. One of the expected life skills is soft skills, namely 4C skills which include critical thinking and problem solving, collaboration, communication, creativity and innovation (Astuti et al., 2019; Listiawati, 2018; Widodo & Wardani, 2020). This skill is very much needed in 21st century knowledge in the Revolution era Industry 4.0. The impact of 21st century learning must produce *knowledge skills, namely the* creation of new ideas, opinions, ideas, and works that form the next creativity, *hard skills, soft skills, entrepreneurship skills,* work culture and K 3LH, which support innovation as proof of real creativity so as to form a work competence according to the needs of students and the world of work (Huang & Ning, 2021; Tang et al., 2020). Entering the era of globalization, there have been many educational units including Vocational Schools that are trying to make changes to make students more developed and qualified in preparing for their lives . The changes made are starting from the approach to learning / learning strategies to aligning the curriculum which always changes / develops every year (Mulyadi, 2016; Shively & Palilonis, 2018).

Creativity and innovation of students really need to be developed in order to produce the competencies that are expected in this current generation, the first is to be able to create new jobs that are unique or *differential* and useful in today's era, for the next human life (students) in the future (Hernandez-de-Menendez et al., 2020; Listiawati, 2018). Both processes and learning outcomes must be able to create goods or services or Appropriate Technology (TTG) products, which can be useful for the sustainability of students' lives in the future. The three outcomes of the learning process must be able to create *new job skills* and new competencies, to be able to equip students to *survive life skills* in the future (König et al., 2020; Yulastri et al., 2018). The results of the learning process must be able to answer the challenges, demands and needs of students and the needs of the world of work, so that whatever is taught in schools and universities, must be able to meet the needs of both (Setiawan et al., 2021; Toma & Greca, 2018). The essence of planning, processes, and learning outcomes is the unification of competencies from educators and students, being able to connect between essential subjects, integrating and collaborating and internalizing curriculum preparation, so that an *integrated curriculum occurs, integrated teaching and learning*, as well as integrated *and collaborative assessment,* in project-based learning or PJBL based on the manufacture of goods and services that are able to realize *relations between multidisciplinary* or relationships between subjects, so that students have creativity and innovation, relevant to the Expertise Program or Expertise Concentration (Putra et al., 2019; Sabri, 2017).

Efforts to increase the creativity of students need to present a more varied learning model (Ariani, 2017; Clarisa et al., 2020; Honicke et al., 2020). Which can generate the creation of new creativity and innovation that raises local culture related to textile or batik land according to regional potential. in accordance with the competency demands of local content subjects of batik where students are able to make creative works, and realized in innovation. The learning process requires a learning model that acts as a framework or concept of a systematic procedure in a learning process to achieve certain goals and as a guide for educators to design and implement learning activities (Kua et al., 2019; Paramita et al., 2019; Wulandari et al., 2020). There are three learning models that can be used in art learning, namely, (1) Constructivism, (2) Research-based art learning, (3) and problem-based art learning. The principle of research-based art learning (*Research*) is learning that directs students to find their own problems and solutions (*discovery* or *inquiry*), so that students feel satisfied with their independent performance (Mamun et al., 2020).

Aligning the needs of students, vocational schools and the world of work, many of which have failed due to low mastery of *soft skills* . Having high *hard skills* but not accompanied by *good soft skills* will result in human resources with less than optimal skills (Lyu & Liu, 2021; Succi & Canovi, 2020). Students should be equipped with skills that include *job skills, hard skills , soft skills, social skills, emotional skills, communication skills, collaboration skills, critical thinking skills, creativity and innovation, academic skills, knowledge skills, entrepreneurial skills for both commercial bussines and social entrepreneurs and technological vocational skills* which is more accurately known as *life skills* , because these skills are complementary, and must be possessed by students. *Soft skills* are skills and life skills, either alone, in groups, or in society, as well as with the Creator (De Mauro et al., 2018; Sharma, 2021). Having *soft skills* makes a person's presence more felt in the community (Hariti et al., 2020; Younis et al., 2021).

Communication skills, emotional skills, language skills, group skills, have ethics and morals, polite and spiritual skills 21st Century Learning of the Industrial Revolution 4.0 towards the Era of Society 5.0 using a scientific approach (*scientific approach*) (Afandi et al., 2019; Junedi et al., 2020). Learning with a scientific approach in the curriculum uses three learning models that are in accordance with the learning objectives of the *scientific approach* , namely, (1) *Project Based Learning* , (2) *Discovery Based Learning,* and (3) *Problem Based Learning* (Culclasure et al., 2019b; Philpot et al., 2017; Resty et al., 2019). This study applies one of the three learning models in the 2013 curriculum, namely the project-based learning model or *Project Based Learning* (PjBL) in learning to make metal crafts (Guo et al., 2020; Mulcahy & Wertz, 2021). With this project-based learning model, students are expected to be able to create illustrations or descriptions of the process of making metal crafts that are more interesting because they can be involved in every stage of project-based learning, and can stimulate skills in work and creativity , and innovation (Sugianto, 2022; Zainul et al., 2020).

Learning using Project Based Learning (PjBL) can significantly increase students' creativity (Chao et al., 2017; Suherman et al., 2020). PjBL is a learning model that involves participants in the transfer of knowledge (Aerts et al., 2017; Ulya et al., 2020). That way, students will gain additional knowledge through their own experiences. In addition, PjBL is a learning model which can increase learning motivation, creativity, problem solving skills, communication skills, collaborating, giving students the experience to be able to share work and control materials and time in completing projects (Ruslan et al., 2021; Wijayati et al., 2019). Based on this, it is necessary to study the perceptions of vocational secondary students towards learning that develops creative thinking which is integrated with project-based learning (PjBL) as research. preliminary. This research was conducted to measure students' perceptions of learning that develops creative and innovative thinking skills in the manufacture of batik products with the motif of the ngibing peacock batik on the local cultural heritage of Tasikmalaya.

Improved alignment , balance, continuity and linkage as well as synchronization between *hard skills* and *soft skills* in The Indonesian government's efforts to develop and improve the *soft skills* of students to produce a quality workforce are carried out by implementing the curriculum as the heart of learning in SMK. However, based on observations made by researchers at SMK Negeri 3 Tasikmalaya City on the Concentration of Craft Production Design Expertise Textiles and Batik. In general *soft skills,* closeness of material and practice learning is far from touching local culture that is very close to the daily lives of students is still not well developed. It takes a learning approach that can develop creativity and innovation capable of explore local culture students through interesting learning activities and can integrate several disciplines. the *project based learning model* has been successfully used to develop competence students who refer to the 21st century skills of the Industrial Revolution 4.0 and *the Era of Society* 5.0, in the subjects of the third Semester of Class XI, collaboratively which form local cultural products such as batik and textile innovation, in line with work competencies in industry. This research applies social and cultural learning. Science and its proof in the Expertise Program. in an effort to develop the *soft skills* of students. The purpose of this study, to describe the Project-Based Learning (PjBL) model in the manufacture of batik products with the motif of the peacock ngibing batik on the local cultural heritage of Tasikmalaya, and Secondary Vocational Education (SMK).

2. METHOD

This research was conducted using a *mix method research method* , namely qualitative and quantitative (Gegenfurtner et al., 2020; Schoonenboom & Johnson, 2017). Data collection techniques used in the form of experiments, knowledge tests, creativity and innovation, *hard skills* and *soft skills* , *entrepreneurial skills* , work culture and K3LH, interviews, field observations, and reflective journals. Learning activities are carried out by applying ten stages, namely providing essential questions, analyzing essential subjects, analyzing educator competencies , integrating educator and student competencies, determining goods or services that have purchase value and are meaningful for students' lives in the future, making administrative plans. projects, compile project schedules with *a block system* , monitor students and product developments, assess or test results, and evaluate students' experiences. The experimental method is devoted to quasi-experimental design with *non-equivalent control group design.* The requirement is that there are other groups that are not subject to experimentation and participate in getting observations.

The stages of the research carried out include 1) the preparation stage includes a preliminary analysis of the curriculum, syllabus, analysis of essential subjects, materials, students, learning models and other related documents. Then 2) the experimental stage includes a) the preparation of research instruments; b) Validity test, reliability test, level of difficulty and distinguishing power of the instrument and instrument development which was then carried out pre-test and post-test in order to obtain research results. Before the research was carried out socialization, a preliminary study from planning, implementing learning and current evaluation in class XI in Semester four of the 2021/2022 academic year using the 2013 Revici curriculum. The researcher was assisted by 2 observers to observe the increase in creativity and innovation of local culture *to* students during learning activities.

Experimental trials were carried out on one class. The trial analysis was carried out as follows, a) the determination of the trial class; b) carry out trials; c). analyze the results of the trial based on predetermined criteria; d) refinement of the *Soft Skills* Improvement Model for Students through *Integrated Teaching and Learning* based on Work Skills for experimental testing. Activity experimental test, model for improving the *soft skills* of students through *integrated teaching and learning* based on work skills includes the following activities: a) determination of the experimental test class; b) determine the experimental group and the control group; c) carry out experimental tests on predetermined samples; d). analyze and evaluate experimental test results; e). determination of the model Improving creativity and innovation of students through project-based learning through *Digital Printing Techniques* based on Job Skills . The data obtained during the next study was reduced, tested, then presented in the form of tables and graphs, analyzed and described and discussed and then drawn

conclusions. Figure 1 shows a visual diagram of a similar solution strategy that will be used in this study. Figure 1 shows the volume and quality and capital letters. Mixed methods citation system strategy, capital means the priority is the same between the two approaches (Reilly & Jones, 2017). Visual Diagram of Mixed Method Simultaneous Triangulation Strategy show in Figure 1.

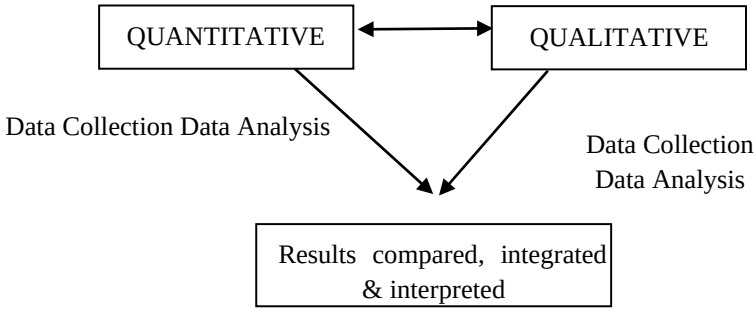

Figure 1. Visual Diagram of Mixed Method Simultaneous Triangulation Strategy.

3. RESULT AND DISCUSSION

Result

This research was conducted by applying a *project based learning approach* . During the research, learning activities were carried out according to the stages in project-based learning. In addition, during research, students also carry out activities that integrate several scientific disciplines according to the integration of science, technology, engineering, art, and mathematics. Before learning begins, the researcher divides the students into 6 groups based on the cognitive level of the students as seen through the *ranking* of students in odd semesters. After that, the researcher gave a number to each student to help researchers and observers observe the increase in creativity and innovation local culture learners. PjBL learning model Integrated is a model that is able to unify *hard skills* and *soft skills* in a balanced way both when educators design learning, implement and evaluate. Learning models can be done easily because *soft skills* are integrated in order to produce creativity and local cultural innovation on topics that are the core competencies of Batik and Textile Craft product design in Vocational Schools.

The integration model begins with the study of *soft skills* resulting from the analysis of the *soft skills needs* of the industry and curriculum needs. Furthermore, the findings of these *soft skills are integrated into hard skills* topics that become content. The integration of these *soft skills* is also described into the learning objectives and in the students themselves as well as the learning experience. Learning objectives are the basis for students and educators in understanding learning targets as well as students demanding work standards for *soft skills* and *hard skills* or multi-target (*nested*). Integration in students explains the internalization process that occurs in line with time and learning mechanisms created by the teacher. The learning experience is the implementation of a civilizing process that emphasizes performance management. PjBL learning model which will be developed is based on the learning of cognitivism, constructivism, behaviorism, and humanism which are used eclectically. Therefore, during learning students develop the concept of *soft skills,* critical thinking skills, learn through facts encountered during practice, try to analyze and make statements to confirm *soft skills behavior* . This is done through discussion, self-reflection or analyzing feedback, it is hoped that students' mastery of the *soft skills concept will be* stronger. The learning situation created by the teacher must be able to grow, maintain and strengthen *soft skills.* The pattern of reinforcement can be developed by the teacher as a form of behavioral consequences displayed during learning.

There are three parts of the model: the lesson planning component, the experiential component and the evaluation component. The planning component starts from the study of *soft skills* , work manners or skills needed in work, the determination of goods and services products and the design of a Product Manufacture Plan related to the content of Textile and Batik Craft production designs. This includes the design of student activities, to make *soft skills behavior, job skills* that will be implemented in learning. The model design also shows integration components including: integration of students as a form of preparing *job skills to take part in soft skills* -based learning . The implementation component describes the learning experience with a learning approach that is used in an eclectic, experience-based, habituation-based work culture plus K3LH which is manifested in performance management or performance. Performance management is a manifestation of the role of educators as facilitators, evaluators, *creators* and innovators as well as assessors and *coaches* who help students achieve mastery and consistent degrees of mastery of *soft skills and job skills* . In other words, the

design of integrated curriculum implementation activities, integrated teaching and learning, and integrated competency-based assessments will equip students to have *soft skills and job skills* that are trained to be implemented during learning, as a form of continuous improvement. The following are the results of the creativity and innovation of the local culture of the Merak ngibing batik which was developed by being integrated with the local potential of Tasikmalaya batik craftsmen, through *digital printing*, to accelerate the textile product market segment in the arts sector and the creative economy. *Digital Printing* Results of Merak Ngibing Batik with Jbatik combined with local potential showed in Figure 2. *Digital Printing* Design of Merak Ngibing Batik with *Corel Draw* combined with local potential showed in Figure 3.

Figure 2. *Digital Printing* Results of Merak Ngibing Batik with Jbatik Combined with Local Potential

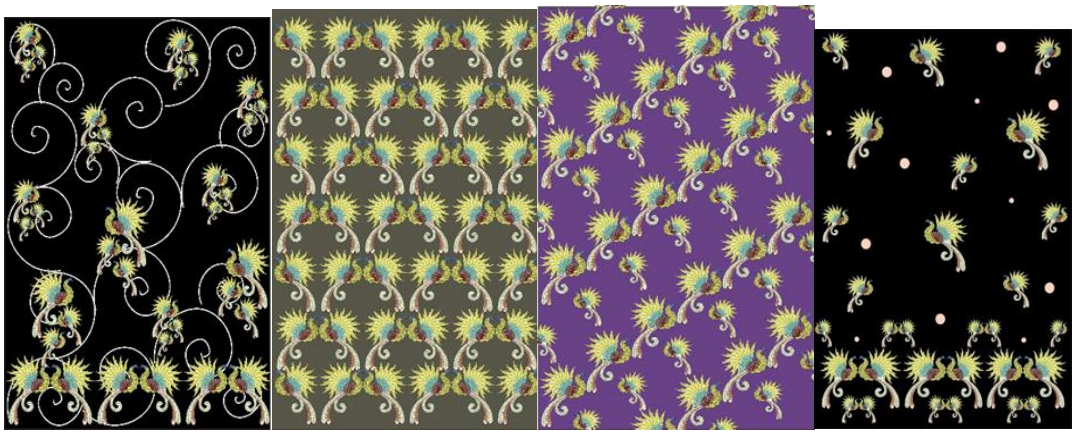

Figure 3. *Digital Printing* Design of Merak Ngibing Batik with *Corel Draw* Combined with Local Potential

Dicussion

Implementation of learning in an active learning format, either face-to-face in theory or practice. The learning strategy developed is based on problem solving, meaning that integrated *soft skills* are internalized through tasks that are carried out in groups or independently (Cinque, 2016; Hussin et al., 2018). The learning process refers to learning activities that describe both the role and learning environment created by educators (Culclasure et al., 2019a; Suherman et al., 2020). Educators as learning managers help students in designing *soft skills behavior* as learning targets, fostering the desire and enthusiasm to realize *soft skills* during the learning process. Educators must be able to foster student motivation on the importance of mastering *soft skills* related to work skills, or to work success (Lyu & Liu, 2021; Tseng et al., 2019). Educators must be able to facilitate learning interests and make themselves *coaching, facilitators, evaluators, creators and innovators as well as assessors* who are able to grow the potential of *soft skills* and their meaning for work (Calero López & Rodríguez-López, 2020). Design a hypothetical model that describes the interrelationships of integrated *soft skills learning components* which include planning, implementation and evaluation .

PjBL learning process to increase creativity (Ardianti et al., 2017; Hasyim & Eldiana, 2020). Skills in making batik peacock ngibing combined with local culture of Tasikmalaya is a process that is passed by students of SMK Batik and Textile Craft Production Design. The process of learning culture is carried out with the first process of internalization, where in this process the feeling of the craftsman feels happy and happy with the profession as a craftsman batik, has a desire to advance and develop his craft business and feel satisfied with the skills he has to be able to open his own business. The second process of socialization, where in this process mutual cultural learning occurs. Therefore, in the process of socializing, imitation or imitation of handicrafts is a natural thing. Such as making kitchen utensils, ladle, swallow, irus, ladle and sutil. Craftsmen's business is often seen by people to be imitated and tried to make it in other places.

Therefore, in pursuing the batik craft business, the craftsmen follow market developments, both in terms of models, motifs, shapes. This condition occurs because of modern environmental conditions, many Chinese products, and market competition. With the large number of Chinese products and market competition, many craftsmen have also changed professions, becoming jelly sellers, and cilok craftsmen . This condition occurred because many furniture, kitchen utensils, and kolem geulis entrepreneurs went bankrupt. The three enculturation processes, in this process the wood craftsmen are required to quickly learn and adapt to market demand. This is like in the process of dealing with merchandise, usually the goods are deposited at the market and the money is taken later in the afternoon. Meanwhile, in terms of producing wood crafts, there are no traditional rituals, so the craftsmen just make wood crafts according to market orders. But still be careful in making crafts, because the equipment used is dangerous. Soft skill learning can train students' skills (Cinque, 2016; Lyu & Liu, 2021).

Likewise, *on-going assessments* make students able to reflect on the achievement of each *soft skill and job skill* that functions as part of self-internalization, work competence and at the same time motivates themselves to do better. For educators, this assessment is an effort to direct students to achieve learning targets, as well as to inform performance achievements or performance as a form of *coaching mechanism* . Evaluation tools used are observation sheets, *soft skills* , *hard skills* , character, work culture and K3LH, application of 5 S (smile, greeting, greeting, courtesy), internalization of 6 R (clean, neat, concise, diligent, caring and friendly) rubrics and peer-to-peer ratings. This is made possible by an integrated PjBL process starting from *an integrated curriculum, integrated* essential *relations* of subjects so as to produce creativity and innovation that will form competence or work skills in the manufacture of textile and batik craft products carried out in PJBL, problem formulation, learning design in the form of RPP Plus in the form of learning modules, implementation of PjBL models in increasing creativity and innovation local culture through making batik that caters to the market segment as an artistic product and supports the creative economy in the Concentration of Design Expertise for Batik and Textile Crafts.

4. CONCLUSION

Based on the research conducted, it can be concluded that students think that the implementation of the PjBL model based on work skills or *job skills* carried out in the manufacture of textile and batik craft production design products with project-based learning is interesting, exciting, fun, can improve *soft skills* and *job skills* , students. PjBL which can increase creativity and innovation of local culture combined with soft skills in management in the workplace, will produce the essence of learning that is in accordance with the needs of students and the needs of the world of work consistently, so that religious education, character education, and cultural education are formed in *real terms* , as acculturation, habituation, internalization of work culture plus K3LH, integration of *soft skills* of educators and students, namely cooperation, critical thinking, environmental care, responsibility, adaptability, creative thinking, leadership, and honesty.

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