

CULTIVATING DIGITAL ENTREPRENEURSHIP SKILLS THROUGH EMPOWERING SENIOR HIGH SCHOOL TEACHERS

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Abstrak: Indonesia menghadapi tantangan untuk keluar dari middle income trap, meskipun telah mencapai status negara berpendapatan menengah keatas. Salah satu langkah penting untuk mendorong pertumbuhan ekonomi adalah dengan meningkatkan jumlah wirausahawan melalui penguatan pendidikan kewirausahaan. Kegiatan pengabdian masyarakat ini bertujuan untuk mengembangkan keterampilan kewirausahaan para guru SMK PK Surabaya melalui Workshop Pembentukan Mindset Kewirausahaan Digital. Metode Participatory Action Research (PAR) digunakan untuk melibatkan guru dalam diskusi dan pengembangan solusi melalui sesi enrichment dan kegiatan berbasis proyek. Program ini berfokus pada pengajaran konsep kewirausahaan digital dan implementasi Empathy Map, yang bertujuan untuk menumbuhkan kemampuan berpikir kritis dalam mengidentifikasi kebutuhan konsumen. Hasil pretest dan posttest menunjukkan peningkatan pemahaman kewirausahaan para guru SMK PK Surabaya, dengan output utama berupa Empathy Map dan inovasi metode pembelajaran kewirausahaan. Workshop ini berhasil mendorong pengembangan keterampilan kewirausahaan di SMK PK Surabaya, yang berpotensi mendukung peningkatan jumlah pengusaha muda dan mengakselerasi pertumbuhan ekonomi Indonesia.

Kata Kunci: middle income trap, kewirausahaan, pendidikan vokasi, mindset kewirausahaan, empathy map

Abstract: Indonesia faces the challenge of escaping the middle-income trap, despite having achieved the status of an upper-middle-income country. One important step in encouraging economic growth is to increase the number of entrepreneurs through strengthening entrepreneurship education. This community service activity aims to develop the entrepreneurial skills of SMK PK teachers in Surabaya through a Workshop on developing a Digital Entrepreneurship Mindset. The Participatory Action Research (PAR) method is utilized to engage teachers in discussions and solution development through enrichment sessions and project-based activities. This program is designed to teach the principles of digital entrepreneurship and how to apply the Empathy Map to develop critical thinking skills for identifying consumer needs. The results of the pretest and posttest show an improvement in the understanding of entrepreneurship among the teachers of SMK PK Surabaya, with the main outputs being an Empathy Map and innovative methods for teaching entrepreneurship. This workshop successfully encouraged the development of entrepreneurial skills at SMK PK Surabaya, which has the potential to support the increase in the number of young entrepreneurs and accelerate Indonesia's economic growth.

Keywords: middle-income trap, entrepreneurship, vocational education, entrepreneurial mindset, empathy map

Introduction

Indonesia is a developing country that has entered the category of upper-middle-income countries with a per capita income of USD 4,580 in 2022 (Belinda, 2023). On the other hand, Indonesia is also facing significant challenges in accelerating its economic growth (Aiyar et al., 2018). Despite Indonesia's significant potential, the nation is currently trapped in the middle-income trap, a condition where a country with a middle-income status struggles to progress to

a high-income level (Chan, 2014). According to Otsuka et al. (2017), Indonesia needs to accelerate its economic growth in order to escape this middle-income trap and achieve developed country status. According to the Secretary of the Ministry of Cooperatives and SMEs (SesmenKopUKM), Arif Rahman Hakim, one of the requirements for Indonesia to become a developed country is to achieve a business ratio of 12% of the total Indonesian population. The economy is transforming with the growth of the young population and rapid urbanization (Al-Haq, 2024). However, until now, Indonesia's business ratio has only reached 3.4% of the total Indonesian population (Ikhsan, 2023).

In contrast to China, which has experienced rapid economic growth as a result of strong support for innovation and entrepreneurship (Tong & Rahman, 2022). The number of entrepreneurs in China has significantly increased in recent decades, contributing greatly to China's Gross Domestic Product (GDP) (Jian et al., 2020). On the contrary, the aspects of entrepreneurship and the number of entrepreneurs in Indonesia remain less advanced in comparison to developed countries. Therefore, Indonesia needs to increase the number of young entrepreneurs to strengthen the country's economy (Lediana et al., 2023). Addressing this need highlights the crucial role of vocational education, especially SMK PK (Center of Excellence), in fostering entrepreneurial talent. According to Saptono et al. (2020), educational institutions that focus on practical skills play an important role in honing students' abilities while also shaping a new generation of individuals for entrepreneurship and the professional world. The practical skills and entrepreneurship skills of SMK PK students can be honed through the teachers at SMK PK, who act as facilitators in the students' learning process. Therefore, according to Asikainen & Tapani (2021), teachers at SMK PK should receive training or workshops related to entrepreneurship in order to develop various innovative teaching methods that can enhance the entrepreneurship skills of SMK PK students. Additionally, growth mindsets are an important antecedent of entrepreneurial self-efficacy beliefs, which in turn have implications for academic and career interest as well as persistence when challenges arise (Burnette, 2020).

Unfortunately, in Indonesia, entrepreneurship education is still often limited to classroom discussions or one-way sharing sessions without hands-on practice or business simulations, making it less effective in building real entrepreneurial competence (Tambengi, 2023). This lack of practical experience in entrepreneurship education underscores the urgency of taking meaningful action. As part of this community engagement program, we plan to involve teachers in creating empathy maps to better understand their students' needs and contexts. We then work together to develop innovative teaching methods so that students can truly experience entrepreneurship learning through practical, real-world activities. Providing targeted training sessions for SMK PK teachers in this way will significantly strengthen their awareness and readiness to teach entrepreneurial skills (Bellani & Cungu, 2023). According to Yohana et al. (2021), the role of prepared teachers has a positive and significant impact on improving students' understanding of entrepreneurship. This initiative will not only produce more educators who are well-equipped with entrepreneurial knowledge and practical teaching

approaches but will also gradually and sustainably build a stronger foundation for entrepreneurial learning within Indonesia’s education system (Amalia & Korflesch, 2022).

Methods

The method used in the Workshop on Developing a Digital Entrepreneurship Mindset is Participatory Action Research (PAR), which emphasizes active collaboration between researchers and participants to study the participants' problems. This collaborative approach enables the participants to analyze the issues, formulate solutions related to the problems, and evaluate their previous decisions and actions (Savin et al., 2007). In the Workshop on Developing a Digital Entrepreneurship Mindset, there were 28 teachers as participants with the following demographic characteristics (as shown in Table 1).

Table 1. Demographic Characteristics of the Participants

Variable	Category	Frequency	Percentage
Gender	Male	18	64.3%
	Female	10	35.7%
Total		28	100%
Age	< 30 years	6	21.4%
	30-40 years	10	35.7%
	41-50 years	7	25%
	51-60 years	5	17.9%
	> 60 years	0	0%
Total		28	100%

Source: Data of Community Engagement Program

The demographic characteristics of the participants indicate that individuals from the Millennial generation mainly attend the Workshop on Developing a Digital Entrepreneurship Mindset. The Millennial generation, having grown up at the onset of the digitalization era, possesses a deep understanding of the digitalization process and has the potential to become key players in the growth of the digital economy in Indonesia (Liu et al., 2019).

The Workshop on Developing a Digital Entrepreneurship Mindset program consists of several stages: (1) coordination with SMK PK Surabaya; (2) material preparation by the team; (3) program implementation; and (4) reporting. This program focuses on developing entrepreneurship skills for teachers at SMK PK Surabaya by presenting entrepreneurship material and inviting teachers at SMP PK Surabaya to work on the Empathy Map project. Through this activity, the expected output is that teachers at SMK PK Surabaya can impart entrepreneurship skills in their subjects, thereby creating innovative teaching methods that can

foster an entrepreneurial mindset among the students at SMK PK Surabaya. Here is an explanation of each stage of the Workshop on Developing a Digital Entrepreneurship Mindset:

1. **Coordination:** The team coordinated with SMK PK Surabaya regarding the teachers' challenges and determined the date, location, and format of the event. The team and SMK PK Surabaya have agreed that the format of the Workshop on Developing a Digital Entrepreneurship Mindset consists of an enrichment session and project-based activities.
2. **Material Preparation:** The team prepared the material for the Workshop on Developing a Digital Entrepreneurship Mindset, which consists of entrepreneurship concepts, entrepreneurial mindset, opportunity assessment, digital business, and the Empathy Map project.
3. **Program Implementation:** This program was conducted from Thursday, September 5, 2024, to Friday, September 6, 2024, from 1:00 PM to 5:00 PM WIB. On Thursday, September 5, 2024, the team instructed SMK PK teachers to conduct a pretest before starting the presentation session. Then, the team presented the material on developing a digital entrepreneurship mindset during the enrichment session and asked the teachers at SMK PK Surabaya to work on the Empathy Map project in groups. An Empathy Map is a visual tool that the product team uses to express their understanding of the users. This Empathy Map is particularly useful for SMK PK teachers as it enables them to develop a deeper insight into the needs and wants of their users. Then, each group presented the results of the Empathy Map project. Before closing the event on the first day, the team conducted a posttest for the teachers. On Friday, September 6, 2024, the team presented an example of the Semester Learning Plan (RPS) from the Development Economics Study Program at the University of Surabaya, so that the teaching staff at SMK PK Surabaya could understand various forms of project-based learning. After that, the team encourages the teachers of SMK PK Surabaya to join the Subject Teacher Consultation group (MGMP). Then, the teachers at SMK PK Surabaya are required to develop innovative teaching methods that can foster entrepreneurship skills among the students at SMK PK Surabaya. After developing innovative teaching methods, the teachers will present their results to receive feedback and suggestions from the workshop organizing team.
4. **Reporting and Output:** This program produces two outputs, namely the Empathy Map and innovative learning methods that can foster an entrepreneurial mindset among students at SMK PK Surabaya, as well as pretest and posttest results as an evaluation of the workshop program

The organizing team for the workshop administered pretests and post-tests to assess the SMK PK teachers' comprehension of entrepreneurial skills in Surabaya before and after their participation in the Workshop on Developing a Digital Entrepreneurship Mindset program, particularly during the enrichment session. Both the pretest and posttest consist of 10 multiple-choice questions, identical to those found in the [Table of Evaluation Instruments](#).

Results and Discussion

The initial stage of the Workshop on Developing a Digital Entrepreneurship Mindset at SMK PK Surabaya is the intervention phase through enrichment sessions and project-based activities provided to the teachers. First, the enrichment session began with the presenter explaining the proportion of each generation in the Indonesian population (Figure 1). It turns out that currently, the population of Indonesia is dominated by the millennial and Gen Z generations who are accustomed to the developments of the digitalization phenomenon. According to Nambisan et al. (2019), the rise of digitalization has made it simpler for both generations to access knowledge and receive support for entrepreneurship through various online platforms that assist in starting and growing businesses. Moreover, the convenience of digitalization also creates opportunities for continuous innovation and quick adaptation in an increasingly dynamic business environment.



Figure 1. Enrichment Session

When adapting to the dynamic business world, it is important to understand the fundamental competencies in facing these changes. Tony Wagner in his book *The Global Achievement Gap* (2014), identifies seven essential competencies for surviving in a constantly changing world, namely critical thinking, problem-solving, collaboration, leadership, agility, adaptability, initiative, entrepreneurship, communication, information access, as well as curiosity and imagination. These competencies serve as an important foundation for the younger generation to develop an entrepreneurial mindset that is relevant in the digital era. According to Kuratko et al. (2020), an entrepreneurial mindset is a way of thinking that boldly takes challenges as opportunities, focuses on goals, is not afraid to try new things, and dreams big. Business opportunities emerge from the market, while business challenges are obstacles that need to be addressed. Digital businesses are progressing with four main features: experience-based products, information overload, transition costs, and positive network effects. The

evolution of business is transitioning from physical stores to digital platforms, enabling global reach and automation.



Figure 2. Discussion of the Empathy Map by the teachers

Afterward, the teachers had the chance to participate in project-based activities. [Figure 2](#) illustrates the teachers engaging in group discussions and creating 1 Empathy Map per group, focusing on the needs of the parents or guardians of students interested in enrolling at SMK PK Surabaya. The Empathy Map serves as a tool to help teachers cultivate an entrepreneurial mindset. It enables the teachers to grasp consumer needs and evaluate areas within the SMK PK that can be improved. The insights gained from the Empathy Map, in turn, act as a benchmark to assess how well the school's curriculum aligns with the expectations of parents from a consumer's standpoint. [Table 2](#) shows the Empathy Map Canvas table produced by each group and the corresponding evaluation results.

Table 2. Empathy Map Canvas

No	Empathy Map Canvas	Evaluation Results
1	<p>Empathy Map Canvas</p> <p>Designed for: <i>Konvensional</i> Designed by: <i>5/09/24</i> Version: <i>01</i></p> <p>WHO WHO are we empathizing with? Who is the person we want to understand? What is the situation they are in? What is their role in the situation? SMK PK Surabaya</p> <p>GOAL What do they need to DO? What do they need to do to succeed? What (if any) do they want or need to get done? What obstacles do they need to remove? How will we know they were successful? Lulus dan Berkarir</p> <p>THINK & FEEL What do they THINK and FEEL? PAINS What are their fears, frustrations, and worries? GAINS What are their wants, needs, hopes and dreams? Banyak masalah Fasilitas memadai</p> <p>HEAR What do they HEAR? What are they hearing from sales? What are they hearing from friends? What are they hearing from colleagues? What are they hearing second hand? Membeli formulir Kunjungan langsung</p> <p>DO What do they DO? What do they do every day? What behavior have we observed? What can we suggest them change? Mencari tau lebih</p> <p>SEE What do they SEE? What do they see in the market? What do they see in their environment? What do they see others doing? What are they watching and in? Setelah 35 pendiri Setelah membantu teman-teman Fasilitas istimewa Pedagogis</p> <p>SAY What do they SAY? What have we heard them say? What can we imagine them say? Setelah berkualitas Setelah beraturan Indukst dan disiplin kualitatif</p>	<p>The topics discussed tend to lack depth in perspective or empathy towards consumers.</p>

No	Empathy Map Canvas	Evaluation Results
2		<p>Discussed the gains in more detail from the previous Empathy Map, namely that customers can directly work or enter good universities after graduating from SMK PK Surabaya. However, other aspects have not been discussed more specifically.</p>
3		<p>Discussed the consumer perspective in more depth by showing the behavior of customers who tend to postpone registration to SMK PK Surabaya and eventually switch to public schools. In addition, this Empathy Map highlights customers' concerns if they do not get a job or cannot complete their education.</p>
4		<p>This Empathy Map shows a deeper understanding of how consumers view SMK PK Surabaya, namely as a vocational school suitable for children with high kinesthetic abilities or those who enjoy practical work, possess specific skills, and are ready to enter the workforce quickly. However, it has not yet been discussed in more detail what consumers gain from SMK PK Surabaya.</p>

After developing the learning innovations, each group presented the results of their discussions (Figure 4). Then, the organizing team provided criticism and suggestions as input for the results of the learning innovation. In the final stage, the team conducted a pretest and posttest to assess the understanding of the teachers at SMK PK Surabaya regarding entrepreneurial skills before and after participating in the Workshop on Developing a Digital Entrepreneurship Mindset program.

<p>Kombel_ Bahasa Indonesia</p> <p>Capaian Kompetensi / Materi : Mengidentifikasi ide-ide yang ada di dalam tajuk rencana dan poster. Tujuan: Siswa mampu mengidentifikasi ide-ide yang ada di dalam tajuk rencana dan poster. Indikator : Siswa mampu membuat poster yang menarik Langkah Pembelajaran:</p> <ol style="list-style-type: none"> 1. Guru memberikan pengantar dengan menjelaskan tujuan pembelajaran yaitu mengajak peserta didik memahami teks persuasi terutama berjenis poster. 2. Guru memberikan contoh satu poster dengan tema ketahanan pangan dan peserta didik dalam kelompok yang terdiri atas 4-5 peserta didik akan mendiskusikan maksud dan tujuan poster. 3. Peserta didik akan diberi dua contoh poster dan peserta didik akan mendiskusikan syarat dan ciri-ciri poster 4. Peserta didik akan mengkategorikan jenis-jenis poster berdasarkan contoh-contoh poster yang diberikan oleh guru. 5. Peserta didik menyimpulkan hasil diskusi dan mempresentasikan hasil diskusi tersebut di depan kelompok yang lain. 6. Guru memandu jalannya diskusi dan membuat kesimpulan hasil diskusi. <p>Penilaian:</p> <ol style="list-style-type: none"> a. Desain grafis dari poster harus memuat komposisi yang seimbang antara huruf dan gambar di atas media kertas atau kain yang berukuran besar. b. Poster pada umumnya dibuat dengan perpaduan warna yang kuat dan kontras. c. Poster menggunakan bahasa yang singkat, jelas, tidak rancu agar mudah dipahami. d. Poster menggunakan kalimat ajakan baik berupa ajakan secara langsung maupun tidak langsung. e. Pesan yang ingin disampaikan sebaiknya disertai dengan gambar yang mendukung. f. Poster bisa dibaca sambil lalu dan menarik minat khalayak umum atau masyarakat. 	<p>Kombel_ Bahasa Inggris</p> <p>Capaian Kompetensi / Materi : Hortatory Exposition Tujuan: Peserta didik mampu mempersuasi konsumen Indikator : Peserta didik mampu memberi rekomendasi dan persuasi konsumen untuk membeli atau menggunakan produk yang ditawarkan</p> <p>Langkah Pembelajaran:</p> <ol style="list-style-type: none"> 1. Belajar mengenal struktur hortatory exposition 2. Belajar mengelaborasi gagasan 3. Belajar menyimpulkan dari banyak gagasan 4. Menerapkan materi tentang hortatory exposition dalam konteks menawarkan produk baik barang maupun produk jasa <p>Penilaian:</p> <p>Presentasi produk yang ditawarkan</p>
<p>Kombel_ Matematika & IPAS</p> <p>Capaian Kompetensi / Materi : Zat dan Perubahan Tujuan: Peserta didik mampu menerapkan prosedur penyelidikan ilmiah melalui percobaan pembuatan sabun Peserta didik mampu mengevaluasi kekurangan atau kesalahan pada desain percobaan pembuatan sabun Peserta didik mampu memasarkan hasil percobaan Indikator :</p> <ol style="list-style-type: none"> 1. Peserta didik mampu membuat sabun cuci tangan sesuai prosedur 2. Peserta didik mampu memasarkan sabun cuci tangan yang telah dibuat <p>Langkah Pembelajaran:</p> <p>Inti : Praktikum membuat sabun cuci tangan Praktik memasarkan sabun cuci tangan</p> <p>Penilaian: Sabun cuci tangan terjual</p>	<p>Kombel_ Sejarah dan PKN</p> <p>Capaian Kompetensi / Materi : Ekonomi Kapitalis Tujuan: Peserta didik mampu menerapkan prinsip ekonomi dalam kehidupan modern Indikator :</p> <ol style="list-style-type: none"> 1. Peserta didik memiliki ide usaha yang kreatif 2. peserta didik mampu memasarkan merchandise. <p>Langkah Pembelajaran:</p> <p>Inti : membuat projek merchandise tentang situs sejarah seperti kota surabaya</p> <p>Penilaian: merchandise yang terjual</p>
<p>Kombel_ TAV</p> <p>Capaian Kompetensi / Materi : Sensor dan transduser Tujuan: Memahami sensor proximity capacitive Indikator : Siswa dapat menginstalasi rangkaian sensor Langkah Pembelajaran:</p> <p>Inti</p> <ol style="list-style-type: none"> 1. Menyampaikan job kerja sesuai job sheet (merangkai sensor) 2. Membagi kelompok dengan memperhatikan kemampuan siswa 3. Mengamati proses instalasi sensor sesuai skema 4. Melakukan penilaian <p>Penilaian:</p> <ol style="list-style-type: none"> 1. Dapat menyelesaikan job dengan benar rangkaian berfungsi(100) 2. Dapat menyelesaikan job rangkaian tidak berfungsi (0) 3. Melakukan remedial bagi yang belum kompeten 	<p>Kombel_ TKJ</p> <p>Capaian Kompetensi / Materi : konfigurasi infrastruktur jaringan DHCP server - client Tujuan : siswa mampu mengkonfigurasi infrastruktur jaringan DHCP server - client Indikator : siswa mampu mengkonfigurasi infrastruktur jaringan DHCP server - client secara real time Langkah Pembelajaran: Pemahaman materi IP Address Pemahaman Topologi Client Server Inti Penilaian: Para siswa mampu membuat topologi Jaringan Client-Server secara real time Para siswa mampu mengkonfigurasi Jaringan DHCP Server-Client Penilaian : dengan menggunakan mode Pjbl analisis pasar : siswa mampu melakukan observasi tempat, analisis kebutuhan perangkat, menentukan range IP Address.</p>
<p>Kombel_ DKV</p> <p>Capaian Kompetensi / Materi : Desain Brief Tujuan: siswa mampu mengaplikasikan tentang struktur desain branding Indikator : siswa mampu mengaplikasikan desain brief ke dalam karya digital ataupun cetak Langkah Pembelajaran: Pemahaman tentang desain brief, pengaplikasian ke dalam digital yaitu desainnya, kemudian pencetakan ke dalam media cetak atau membuat media digital, kemudian hasil yang ada dapat ditawarkan ke pasaran. Inti Penilaian:dengan menggunakan mode Pjbl</p>	<p>Kombel_ PKV & AGAMA</p> <p>Capaian Kompetensi / Materi : Menyelamatkan jiwa-jiwa Tujuan: Memahami salah satu keutamaan vincentian sebagai salah satu dasar entrepreneur Indikator : Mampu berempati terhadap yang mengalami kesulitan untuk menjadi peluang Langkah Pembelajaran: Aku Saluran Cinta (ASC). Semua jenjang, Perencanaan: pendanaan, pelaksanaan, Evaluasi</p> <p>Penilaian: Refleksi dan Observasi</p>

Figure 4. Learning Innovation Plan

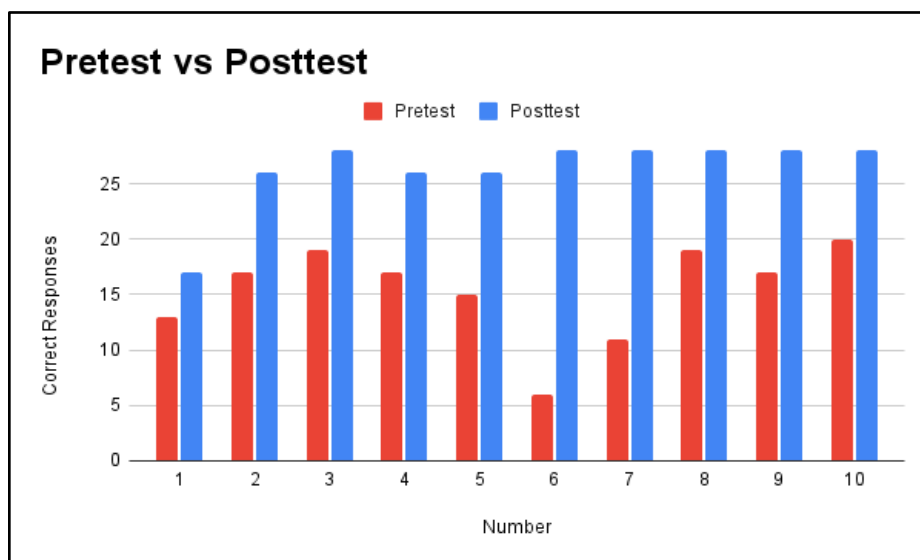


Chart 1. Pretest and Posttest Results

According to [Chart 1](#), the teachers' posttest scores demonstrated an improvement compared to their pretest scores. This improvement indicates that following the presentation on entrepreneurial skills and working on the Empathy Map, the teachers developed a deeper understanding of entrepreneurship. Knowledge, attitude, and awareness, along with skills, serve as the three primary benchmarks for evaluating the effectiveness and success of a community service program. These benchmarks encompass cognitive, affective, and practical abilities that are expected to yield positive changes for both the participants and the community involved (see [Table 3](#)).

Table 3. Analysis of the Success Criteria for the Community Service Program

Criteria	Analysis	
	Before	After
Knowledge	The SMK PK teachers have not fully developed entrepreneurship skills and do not understand digital entrepreneurship.	The SMK PK teachers have developed entrepreneurship skills and understand digital entrepreneurship.
Attitude & Awareness	The teachers at SMK PK do not yet understand the Empathy Map method to comprehend the needs of consumers, namely the parents.	The teachers of SMK PK have understood the Empathy Map method to understand the needs of consumers, namely the parents.
Skills	The teachers at SMK PK have not yet implemented the concept of digital entrepreneurship in the learning process of students.	The teachers at SMK PK have started implementing the concept of digital entrepreneurship by creating innovative entrepreneurship-based learning methods for their students.

Source: Author's Analysis

The Workshop on Developing a Digital Entrepreneurship Mindset at SMK PK Surabaya offers a distinctive contribution by placing teachers as the main agents of innovation in entrepreneurship education. Through a combination of enrichment sessions, empathy map development, and collaborative curriculum design, the program successfully strengthened teachers' entrepreneurial knowledge and attitudes. This teacher-focused approach is especially important because entrepreneurship training in schools typically targets students, while teachers often receive minimal support in terms of pedagogical preparation. Prior research has shown that when teachers are well-equipped and confident in delivering entrepreneurship-related content, students are more likely to develop a deeper understanding and appreciation of entrepreneurial values and practices (Yohana et al., 2021).

Prior community engagement initiatives, such as the programs by Suchaina et al. (2019) and El-Sulukiyyah et al. (2019), only focused on fostering creativity and soft skills among students through sewing and knitting projects. Similarly, Peltonen (2015) highlights the effectiveness of project-based, student-centered learning in cultivating entrepreneurial thinking, but places less emphasis on the role of teachers as curriculum designers or facilitators of long-term educational transformation. In contrast, the Workshop on Developing a Digital Entrepreneurship Mindset equips teachers with empathy-based tools and contextual strategies to align entrepreneurship education with real-world challenges. These tools and strategies enable a more sustainable integration of entrepreneurial learning into vocational school systems to strengthen students' entrepreneurial skills.

Conclusion

The Workshop on Developing a Digital Entrepreneurship Mindset demonstrates that empowering teachers through project-based entrepreneurship training can lead to more sustainable improvements in vocational education. By involving teachers in empathy mapping and collaborative learning innovation planning, the program enabled them to design subject-specific learning activities that integrate entrepreneurial thinking. These innovations are not only theoretical but are structured to guide students in developing real products or services that can be marketed and externally assessed. This shift ensures that students experience entrepreneurship as a practical, hands-on process, while teachers take an active role as facilitators of applied entrepreneurial learning within the classroom.

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Appendix

Table of Evaluation Instruments

No.	Questions
Q1	<p>According to UNESCO, the four essential pillars of education in the 21st century include:</p> <ul style="list-style-type: none"> a) Learning to know, learning to do, learning to be, learning to live together b) Learning to innovate, learning to create, learning to share, learning to grow c) Learning to lead, learning to collaborate, learning to adapt, learning to survive d) Learning to work, learning to communicate, learning to develop, learning to manage <p>Answer Key: A</p>
Q2	<p>One of the survival skills according to Tony Wagner is:</p> <ul style="list-style-type: none"> a) Mastering technology b) Critical thinking and problem-solving c) Having extensive knowledge of culture d) Developing creativity in the arts <p>Answer Key: B</p>
Q3	<p>What is meant by "entrepreneur"?</p> <ul style="list-style-type: none"> a) Someone who runs an existing business to avoid risk b) Someone who creates a new business by facing risks and uncertainties to achieve profit c) Someone who manages a family business without any changes d) Someone who invests in stocks to gain profit without risk <p>Answer Key: B</p>
Q4	<p>An important characteristic of an entrepreneur is:</p> <ul style="list-style-type: none"> a) Not hesitating to take risks b) Tending to work independently c) Avoiding challenges in business d) Focusing on passive income <p>Answer Key: A</p>
Q5	<p>The entrepreneurial mindset can be defined as:</p> <ul style="list-style-type: none"> a) A perspective that encourages entrepreneurial behavior with low confidence b) A mindset that always avoids risk for financial security c) A perspective that encourages entrepreneurial behavior through a high-confidence thinking process d) A mindset that prioritizes short-term gains <p>Answer Key: C</p>
Q6	<p>The main features of digital products that involve a "lock-in situation" are:</p> <ul style="list-style-type: none"> a) Positive network externalities b) Transition costs c) Informational overload d) Experience goods <p>Answer Key: B</p>
Q7	<p>One of the challenges in running a digital business is:</p> <ul style="list-style-type: none"> a) Managing employees in physical stores b) Facing information overload

	<p>c) Reducing production costs d) Maintaining competitive product prices</p> <p>Answer Key: B</p>
Q8	<p>Business opportunities are defined as:</p> <p>a) Obstacles that entrepreneurs must face in running a business b) Opportunities to leverage market events to start a business c) Problems encountered in daily business operations d) Risks that must be avoided in running a business</p> <p>Answer Key: B</p>
Q9	<p>What is meant by "side gig" in the context of digital business?</p> <p>a) Side business that does not have a significant impact on the main income b) Side job that contributes an additional 25-50% to the main income c) The main job that supports personal hobbies or interests d) Social activities conducted outside of the main job</p> <p>Answer Key: B</p>
Q10	<p>In digital business, "positive network externalities" means:</p> <p>a) Users prefer cheaper products b) The benefits of the product increase as more users join c) Users switch to newer, more innovative products d) The product becomes less valuable over time</p> <p>Answer Key: B</p>