

## Featured Research

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# Adaptive Vocational Curriculum through Digital Marketing for Empowering Learners with Intellectual Disabilities

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**Abstract:** The rapid development of digital technology demands vocational education that is more inclusive and aligned with contemporary economic needs. However, vocational learning for students with intellectual disabilities in special schools generally remains focused on product creation without integrating digital marketing skills. This study aims to develop an adaptive vocational curriculum based on digital marketing for students with intellectual disabilities at SLB C Payakumbuh. The research employed a Research and Development approach using the ADDIE model, encompassing analysis, design, development, implementation, and evaluation stages to produce an adaptive digital marketing-based vocational curriculum module. Data were collected through needs assessment, expert validation, observation, and interviews, and analyzed descriptively. The results indicate that the developed curriculum module is feasible for use, improves teachers' understanding of digital marketing-based vocational learning, and supports students' initial abilities to market vocational products with varying levels of independence. This study highlights the importance of integrating digital marketing into vocational curricula to support the empowerment and early economic independence of students with intellectual disabilities.

**Keywords:** Inclusive vocational education, Intellectual disability, Digital marketing, Adaptive curriculum, Research and Development (R&D)

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## INTRODUCTION

The development of digital technology over the past decade has created new opportunities in the fields of education and employment. However, individuals with intellectual disabilities continue to face significant gaps in accessing technology-based education that is relevant to the demands of the modern workforce. A report by UNICEF (2021) indicates that the use of digital technology among individuals with intellectual disabilities remains low due to limited access, insufficient policy support, and a lack of appropriate training. (Atanga et al., 2020; Yulisetiani et al., 2024) argue that assistive technologies can enhance practical skills and independence among students with special needs; nevertheless, their implementation is still constrained by infrastructural barriers

and the limited readiness of educators. Similarly, (Ngoasong., 2022; Ajani., 2024) emphasize that the successful integration of technology is strongly influenced by the availability of adaptive curricula and consistent institutional support.

In Indonesia, the integration of technology into vocational education also faces major challenges. Digital transformation at the school level has progressed slowly, particularly in vocational education involving students with special needs. (Fitrihana & Nurdiyanto., 2024) states that the digital competencies of vocational students are not yet fully aligned with the demands of technology-driven industries. (Duryea et al., 2019) noted that vocational training for individuals with disabilities remains constrained by non-adaptive curricula and limited digital facilities. These conditions are further supported by the findings of (Saad et al., 2024; Kadarisman et al., 2024), which indicate that vocational learning implementation in special education schools (SLB) often lacks standardized guidelines, resulting in teachers designing instructional activities largely based on individual initiatives. In addition, several studies (Setyowati et al., 2024; Dunan et al., 2025) emphasize that digital marketing has the potential to enhance the economic independence of disability communities; however, the integration of digital marketing strategies into the formal SLB curriculum has not yet been conducted in a systematic manner.

These challenges are also evident at SLB C Payakumbuh. Based on preliminary observations, teachers at the school do not yet have a structured vocational curriculum, resulting in vocational learning being designed independently by individual teachers. This condition aligns with the findings of (Knight et al., 2019; Nanji et al., 2024), which indicate that the absence of standardized curriculum guidelines can hinder the effectiveness of skill training for students with intellectual disabilities. In addition, limitations in facilities and technological resource support pose further obstacles to the development of digital-based vocational learning, as highlighted (Purmadi et al., 2022). Teaching practices that remain relatively monotonous and lack innovation are also consistent with the findings of (Crispel & Kasperski., 2021; Lindacher., 2020), who reported that teachers in special education schools tend to maintain traditional instructional methods. Furthermore, the absence of digital marketing integration in vocational learning at SLB C Payakumbuh underscores a clear practice gap, as noted by (Idris., 2024) who emphasized that the integration of digital marketing into vocational education has not yet been systematically implemented within the context of special education.

Although the digitalization of vocational learning has been examined in various contexts, most existing studies continue to focus on the development of basic skills and general technological competencies for students with special needs. To date, there has been no research that directly develops an adaptive vocational curriculum based on digital marketing, systematically designed using an R&D model and implemented within formal learning settings in special education schools (SLB). Furthermore, studies on digital marketing training for disability communities in Indonesia have largely been conducted in non-formal contexts and are not directly linked to school curricula. Therefore, there is an urgent need to introduce a vocational curriculum model that is not only adaptive to the characteristics of students with intellectual disabilities, but also

capable of integrating digital marketing as a relevant vocational skill in the era of the digital economy.

Based on these gaps, this study aims to develop an adaptive vocational curriculum based on digital marketing for students with intellectual disabilities at SLB C Payakumbuh using a Research and Development (R&D) approach with the ADDIE model. This research is expected to make a conceptual contribution to the advancement of technology-based adaptive vocational curriculum development, as well as a practical contribution to enhancing the empowerment and socio-economic independence of students with intellectual disabilities.

## METHOD

This study employed a Research and Development (R&D) approach aimed at developing an adaptive vocational curriculum integrating digital marketing for students with intellectual disabilities. The ADDIE development model was applied, consisting of the analysis, design, development, implementation, and evaluation stages (Rusdi et al., 2022). This model was selected because it provides a systematic and user-oriented framework, making it suitable for instructional development in special education contexts. The research was conducted at SLB C Payakumbuh, West Sumatra, a reference special school for students with intellectual disabilities that implements active and structured vocational learning programs. The research participants included students in grades X–XII SMALB, the school principal, and classroom teachers directly involved in vocational instruction. Participants were selected using purposive sampling based on their relevance to the research objectives.

Data were collected through needs assessment, classroom observations, teacher interviews, and expert validation instruments (Yaakop, 2023). The needs assessment aimed to identify initial vocational learning conditions, students' abilities, teacher readiness, and curriculum gaps related to the integration of digital marketing (Zahay et al., 2022). Based on the analysis results, a digital marketing learning module was designed and structured into 14 instructional sessions, covering basic digital marketing concepts, social media utilization, and simple practices for marketing products created through vocational learning. The developed module was then validated by three experts, namely the school principal, a classroom teacher, and a specialist in learning modules for students with special needs, to assess content feasibility, language clarity, presentation, and suitability to students' characteristics (Sintawati & Margunayasa, 2021).

The implementation stage involved teacher training and the application of the learning module using an A–B–A design as a formative evaluation to observe the gradual transfer of instructional roles from the expert to teachers (Maulisa et al., 2024). Evaluation was conducted to assess module acceptability, teachers' understanding of digital marketing-based vocational learning, and the initial impact on students' independence in marketing products (Sutadi et al., 2023). Data were analyzed using descriptive qualitative analysis through data reduction, categorization, and conclusion drawing (Salmona & Kaczynski, 2024). Data validity was ensured through expert validation and source

triangulation. This study was limited to a single school and focused on formative evaluation; therefore, the findings are not intended for broad generalization.

## **RESULTS AND DISCUSSION**

### **RESULTS**

#### **Analysis**

The needs analysis stage was conducted through a needs assessment involving students with intellectual disabilities, as well as observations and interviews with teachers at SLB C Payakumbuh. This school was selected as the research site because it serves as a reference school for students with intellectual disabilities and has active and well-structured vocational learning activities. Based on the SMALB curriculum, vocational learning is implemented for 24 hours per week, and students regularly produce handicraft products as part of the learning process.

The results of the analysis indicate that although students are able to produce vocational products, they do not yet possess digital marketing skills. The products generated are limited to learning outcomes and are not accompanied by marketing efforts that could enhance their economic value. Therefore, the primary need identified is the development of an adaptive digital marketing learning module that is aligned with the characteristics of students with intellectual disabilities as a means of strengthening vocational education.

#### **Design**

Based on the results of the needs assessment, the design stage focused on students in grades X–XII of SMALB, involving a total of eight students. The results of IQ assessments and academic ability evaluations indicated that the students were at a relatively homogeneous level of ability. Therefore, the digital marketing learning module was designed as a single main module that can be jointly used by both students and teachers.

The designed module consists of 14 learning sessions, covering an introduction to digital marketing, the use of social media, and practical activities for marketing products generated through vocational learning. In the instructional design, classroom teachers were involved as the primary support system to ensure the sustainability of implementation after the completion of the research.

#### **Development**

At the development stage, the digital marketing learning module was systematically developed and adapted to the characteristics of students with intellectual disabilities. The developed module then underwent an expert validation process involving three parties: the principal of SLB C Kota Payakumbuh, an SMALB classroom teacher, and an expert in learning module development for students with special needs.

**Table 1.** Results of Expert Validation of the Digital Marketing–Based Vocational Curriculum Module

Validator	Position	Assessed Aspect	Validation Percentage	Category	Remarks
Khaironda, S.Pd	Principal	Suitability of digital marketing–based vocational learning	100%	Valid	The product is considered valid if the percentage exceeds 70%
Reni Afrina, S.Pd	Teacher	Learning model and methods of the module	100%	Valid	The product is considered valid if the percentage exceeds 70%
Ridha Annisa, M.Pd	Lecturer	Feasibility of the vocational curriculum module	100%	Valid	The product is considered valid if the percentage exceeds 70%

Source: Primary data, 2025

Based on the expert validation results presented in Table 1, the adaptive vocational curriculum module based on digital marketing was rated as highly feasible for use in learning activities. The validation was conducted by three experts with different professional backgrounds, namely a school principal, a classroom teacher, and a lecturer specializing in education for students with special needs. The involvement of validators from diverse backgrounds was intended to obtain a comprehensive assessment of the module's feasibility from practical, pedagogical, and academic perspectives.

The evaluation results indicate that all assessed aspects achieved a validation percentage of 100%, exceeding the minimum feasibility threshold established. The assessed aspects included the suitability of the content to the characteristics of students with intellectual disabilities, clarity of material presentation, appropriateness of instructional methods, and the relevance of the module to the objectives of digital marketing–based vocational learning. Therefore, the developed module is considered valid and appropriate for use as a guideline for vocational digital marketing instruction at SLB C Payakumbuh.

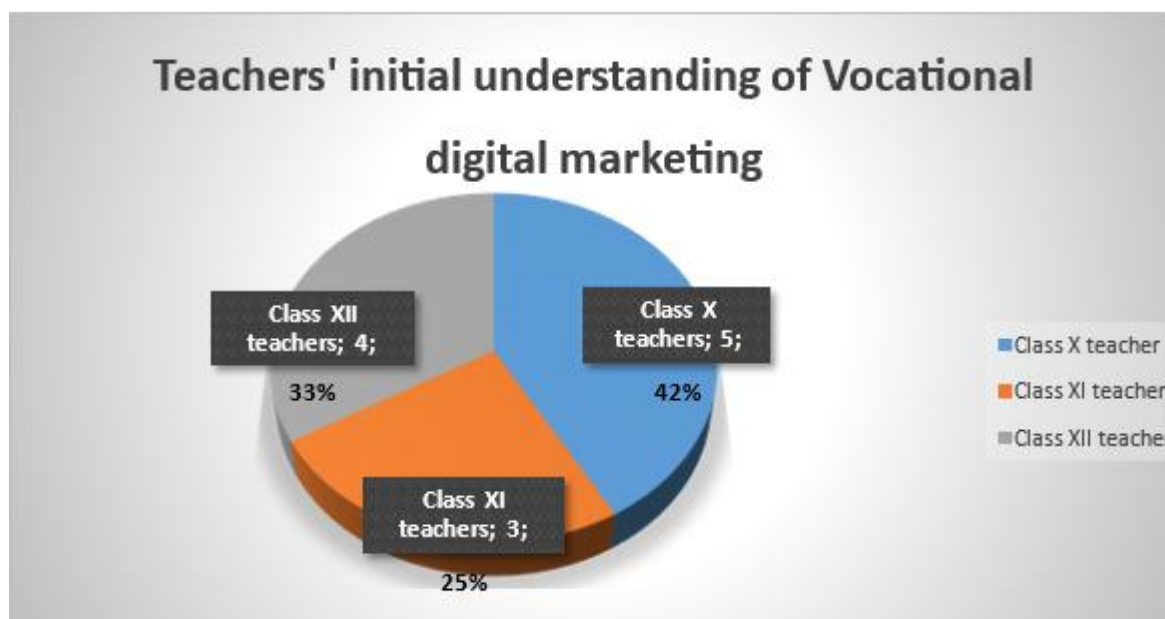
Furthermore, the expert validation process served as a form of expert triangulation to minimize subjective bias in product evaluation. Feedback and suggestions provided by the validators were used as the basis for refining the module prior to the implementation stage, ensuring that the final product not only meets theoretical feasibility standards but also aligns with the practical needs and real conditions of learning in special education settings.

## Implementation

The implementation stage was carried out in two phases. The first phase involved the socialization of digital marketing concepts to teachers and members of the school community. The second phase focused on the implementation of the vocational

curriculum module using an A–B–A design applied to teachers of grades X, XI, and XII, with baseline phases A1–B1–A2. This design was employed to examine the gradual transfer of instructional roles from the expert to the teachers during the learning process.

At the initial stage of implementation, a pre-test was administered to teachers to assess their prior knowledge and understanding of digital marketing. This stage also included an evaluation of teachers' capacity to comprehend appropriate techniques and instructional methods for teaching digital marketing–based vocational skills to students. The results of this initial assessment served as a foundation for providing targeted guidance and support during the subsequent implementation stages.



**Figure 1.** Diagram of teachers' initial understanding of digital marketing vocationalism

The diagram indicates that teachers initially had limited knowledge of digital marketing in vocational learning, as this topic has not yet been formally integrated into the curriculum for students with special needs. Consequently, this study provided training for teachers and the school academic community to enhance their understanding of digital marketing concepts and their application in vocational education for students with intellectual disabilities.

The subsequent stage involved the implementation of the vocational learning module using an A–B–A design (baseline–intervention–post-intervention), which aimed to examine the gradual transfer of instructional roles from the expert to the teachers. The implementation stages are described as follows:

#### **Stage A1 (Initial Intervention)**

This stage was conducted over five learning sessions, during which all instructional activities were led by the expert. Teachers acted as observers to understand the instructional approach, the use of the module, and appropriate teaching techniques. At this stage, 100% of the learning process was delivered by the expert.

#### **Stage B1 (Intervention)**

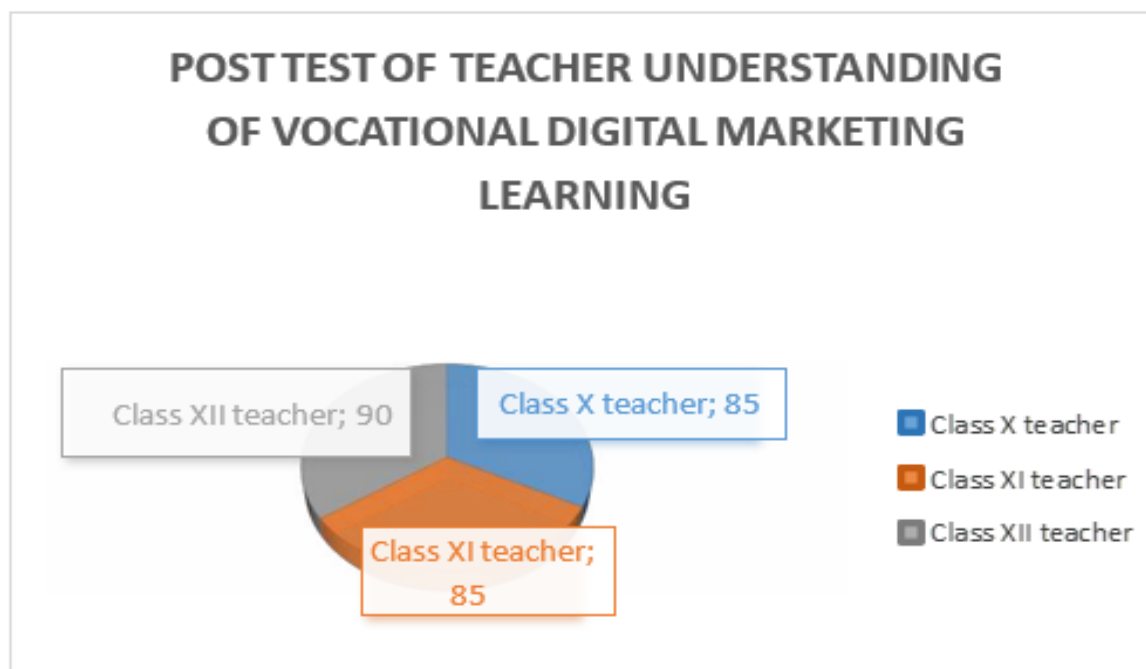
During this stage, teachers began to take an active role as the primary instructors, while the expert functioned as a facilitator and observer. This phase aimed to ensure that teachers were able to implement the module independently using appropriate instructional strategies.

### Stage A2 (Post-Intervention)

At this stage, teachers fully assumed responsibility for the instructional process without expert assistance. This phase demonstrates the successful transfer of knowledge and instructional skills from the expert to the teachers in teaching digital marketing to students.

### Evaluation

The evaluation stage was conducted as a formative evaluation to assess teachers' understanding of the developed module as well as the initial impact of the learning implementation on students. Evaluation activities were carried out through interviews with teachers to examine their comprehension of the module and to identify perceived changes in students' learning experiences following the implementation of digital marketing based vocational instruction.



**Figure 2.** Post-test diagram of teachers' understanding of digital marketing vocational learning

Based on the figure above, there is a clear improvement in teachers' understanding of vocational learning, which previously focused solely on product creation and has now expanded to include digital marketing aspects. The findings indicate a substantial increase in teachers' comprehension of vocational instruction, which was formerly limited and monotonous, centered only on producing goods. Following the implementation of the module, most teachers demonstrated a strong understanding of digital marketing concepts and their application in vocational education for students with intellectual disabilities.

The initial impact of the learning implementation on students was also evident. Some students were able to independently market vocational products through social media and successfully complete sales transactions. Other students were able to participate in product marketing activities with teacher assistance, particularly those with limitations in verbal communication. Despite variations in students' levels of independence, the overall learning outcomes were considered successful. Students who previously focused only on producing vocational products were able to progress to the marketing stage, which represents an important indicator of increasing independence and self-empowerment.

## DISCUSSION

The results of the study indicate that the development of an adaptive vocational curriculum based on digital marketing at SLB C Payakumbuh is relevant to the vocational learning needs of students with intellectual disabilities. Findings from the analysis stage reveal that although students are able to produce vocational products through routine learning activities, digital marketing skills have not yet been integrated into the curriculum. As a result, the products generated have not achieved optimal economic value. This condition is consistent with the findings (Young & Hordern., 2022; Yoto et al., 2024), who report that vocational learning in special schools generally emphasizes production skills without incorporating advanced competencies oriented toward economic independence. Therefore, integrating digital marketing into the vocational curriculum represents a strategic need to broaden the scope and meaning of vocational education in special education settings.

At the development stage, expert validation results indicate that the developed module was deemed feasible for use by the school principal, classroom teachers, and an expert in special needs education. These findings confirm that the module aligns with the characteristics of students with intellectual disabilities in terms of content, language, and instructional approach. This result is in line with studies (Bessarab et al., 2025; Huera et al., 2024), which emphasize the importance of adapting curricula and instructional materials to the cognitive and social needs of students with special needs. Validation by multiple experts also strengthens the credibility of the module through triangulation of practical and academic perspectives, ensuring that the product is not only theoretically sound but also applicable in the context of special schools.

The implementation of the module using an A-B-A design demonstrates that the gradual and controlled transfer of instructional roles from the expert to teachers can be effectively achieved. The improvement in teachers' understanding of digital marketing concepts and practices following training and mentoring indicates that the module functions not only as a learning resource for students but also as a capacity-building tool for teachers. This finding is consistent with (Zhang & Zhang., 2024), who argue that successful technology integration in special education is strongly influenced by teachers' readiness and digital literacy. Moreover, the gradual mentoring approach aligns with the findings (Pramesworo et al., 2023), which highlight the importance of continuous support

for educators when implementing technology-based learning for students with special needs.

The initial impact of the learning implementation on students suggests an increased understanding that marketing is an integral component of vocational learning rather than merely an additional activity. Although students' levels of independence varied, some students were able to market products independently through social media, while others required teacher assistance. These findings are consistent with studies (Alexopoulou et al., 2021; Klavina et al., 2024), which indicate that integrating digital skills into vocational learning can enhance participation and independence among individuals with disabilities, although the process requires time and sustained support. Overall, the results reinforce the view that transforming vocational curricula toward a more comprehensive learning chain from production to marketing is a crucial step in supporting the empowerment and independence of students with intellectual disabilities in the digital era.

## CONCLUSIONS

This study concludes that the development of an adaptive vocational curriculum based on digital marketing for students with intellectual disabilities at SLB C Payakumbuh is a relevant and contextually appropriate approach to addressing vocational learning needs in special education. The results of the needs assessment indicate that vocational learning, which has traditionally focused on product creation, has not been accompanied by the development of marketing skills. Consequently, the economic potential of students' products has not been fully optimized. These findings underscore the importance of integrating digital skills as an integral component of a more comprehensive vocational learning framework.

The development of the module through a Research and Development (R&D) approach using the ADDIE model resulted in a learning product that was deemed feasible based on expert validation. The developed module met criteria related to content relevance, language clarity, presentation, and alignment with the characteristics of students with intellectual disabilities. The staged implementation of the module using an A-B-A design demonstrated that the transfer of instructional roles from the expert to teachers could be conducted effectively, contributing to improved teacher understanding of digital marketing-based vocational learning. Furthermore, the formative evaluation results revealed positive changes in vocational learning practices among both teachers and students. Teachers began to integrate digital marketing concepts into vocational instruction, while students demonstrated an initial understanding that marketing is an essential part of the vocational process rather than merely an additional activity. Although students' levels of independence varied, the ability of some students to market products independently or with teacher assistance indicates the potential of this approach to support the development of independence and empowerment among students with intellectual disabilities.

Overall, this study highlights that transforming vocational curricula through the integration of digital skills should be viewed as a gradual process that emphasizes

feasibility, acceptability, and sustainability of implementation in special schools. The findings are expected to serve as a foundation for the development of adaptive, technology-based vocational curricula in other special education settings and to encourage collaboration among teachers, schools, and stakeholders in promoting more inclusive and digitally relevant vocational education.

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