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Навуковы Артыкул

Баньюмасанска-явайская лакальная мудрасць у праектна-арыентаваным навучанні: распрацоўка і валідацыя паказчыкаў для прадпрымальніцкай адукацыі

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Анатацыя. Дадзенае даследаванне распрацоўвае і валідуе інструмент для інтэграцыі баньюмасанска-явайскай лакальнай мудрасці ў праектна-арыентаванае навучанне прадпрымальніцтву (PJBL) ў вышэйшай школе. У межах змешанага, даследчага дызайну мы найперш вылучылі каштоўнасныя канструкты праз глыбіннае інтэрв'ю і вусную гісторыю з культурна аўтарытэтным ключавым інфармантам (Ахмад Тахары), пасля чаго правялі дыскусію фокус-групы і трыянгуляцыю з экспертамі для ўдакладнення кандыдатных індыкатараў. Якасныя даныя аналізаваліся ў MAXQDA праз адкрытае – восевае – выбарачнае кадзіраванне, з падтрымкай кодбука, аналітычных мемаў і member-checking; у выніку атрымана 12 каштоўнасцяў (напр., cablaka, guyub rukun, prewira, ajur ajer), якія былі супастаўлены з вынікамі PJBL (кагнітыўныя, афектыўныя, паводзінскія, выніковасць артэфакта). Каб пацвердзіць структурную значнасць і прыярытэтызаваць пазіцыі, мы прымянілі Fuzzy-DEMATEL да экспертных ацэнак. Усе індыкатары перавысілі парог прыняцця рашэння, што пацвярджае іх важнасць на ўзроўні ўсяго набору. Найбольш уплывовым вымярэннем выявіліся паводзінскія вынікі, далей ідуць афектыўныя і кагнітыўныя. Сярод індыкатараў найвышэйшы прырост маюць лідэрства/адказнасць, настойлівасць, гарманічнае, але адкрытае супрацоўніцтва, самастойнасць, адкрытасць і адаптыўнасць як ключавыя рычагі PJBL. Зместавую валіднасць мы праверылі з дапамогай Aiken's V на выбарцы з пяці экспертаў; усе пазіцыі дасягнулі або перавысілі прынятыя парогі. Удасканалены інструмент быў апрабаваны на студэнтах прадпрымальніцтва і бізнесу, і надзейнасць паказала добрую ўнутраную ўзгодненасць. У сукупнасці якасная аснова, структурная валідацыя Fuzzy-DEMATEL, экспертная праверка (CVR/Aiken's V) і студэнцкія паказчыкі надзейнасці пацвярджаюць, што інструмент з'яўляецца культурна заякарчаным і псіхаметрычна стрыманым. Вынікі рэкамендуюць выкладчыкам рабіць акцэнт на паводзінскіх «лесвіцах» і ацэньванні, адначасова выкарыстоўваючы адаптыўныя кагнітыўныя стратэгіі і падтрымлівае афектыўнае асяроддзе, што спрыяе кантэкстуалізаванай, каштоўнаснай адукацыі ў прадпрымальніцтве, заснаванай на лакальнай мудрасці.

Ключавыя словы: баньюмасанска-явайская каштоўнасць, лакальная мудрасць, праектна-арыентаванае навучанне, прадпрымальніцкая адукацыя

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Research Article

Banyumasan–Javanese Local Wisdom in Project-Based Learning: Indicators Development and Validation for Entrepreneurship Education

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Abstract. This study develops and validates an instrument to integrate Banyumasan–Javanese local wisdom into project-based entrepreneurship learning (PJBL) in higher education. Using a mixed-methods, exploratory design, we first elicited value constructs through an in-depth interview and oral history with a culturally authoritative key informant (Ahmad Tohari), followed by a focus group discussion and expert triangulation to refine candidate indicators. Qualitative data were analyzed in MAXQDA via open–axial–selective coding, supported by a codebook, analytic memos, and member-checking, yielding 12 values (e.g., cablaka, guyub rukun, prewira, ajur ajer) mapped to PJBL outcomes (cognitive, affective, behavioral, artifact performance). To establish structural relevance and prioritize items, we applied Fuzzy-DEMATEL to expert judgments. All indicators exceeded the decision cut-off confirming demonstrated importance at the set level. Behavioral outcomes emerged as the most influential dimension, followed by affective and cognitive. The highest-prominence indicators were leadership, perseverance, harmonious but candid collaboration, self-reliance, openness, and adaptiveness as key levers for PJBL. Content validity was then examined with five experts using Aiken's V, with all items meeting or exceeding accepted thresholds. The refined instrument was administered to entrepreneurship and business students. Reliability showed good internal consistency. Collectively, the qualitative grounding, Fuzzy-DEMATEL structural validation, expert content review (CVR), and student-based reliability evidence support a culturally grounded, psychometrically sound instrument. The results guide instructors to emphasize behavior-centric scaffolds and assessment while leveraging adaptive cognitive strategies and a supportive affective climate, thereby advancing contextualized, character-rich entrepreneurship education rooted in local wisdom.

Keywords: banyumasan-javanese value, local wisdom, project-based learning, entrepreneurship education

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Introduction

Entrepreneurship education plays a vital role in equipping students with the skills needed to face the increasingly dynamic challenges of the labor market. This field is rapidly evolving and strengthens business education, innovation, and creativity among students (Carpenter & Wilson, 2022). The development of entrepreneurship can serve as a means to create sustainable solutions for various social and economic issues, such as environmental problems and poverty (Jardim, Bártolo, & Pinho, 2021). Mwasalwiba (2012) states that this objective can be achieved by promoting an entrepreneurial culture. Accelerating the development of an entrepreneurial culture in higher education can enhance the relevance of educational outcomes to labor market demands (Muchlas, 2021). The development of elements of entrepreneurial culture requires the creation of a supportive educational environment that fosters the creation of value, socio-professional projects, useful products, and innovative services (European Commission, 2013). However, conventional learning approaches are often insufficient to explore the unique potential of entrepreneurial culture that is aligned with the needs of local communities. The implementation of innovative methods, adaptive curricula, and the inclusion of local wisdom supports open innovation that fosters a collaborative and holistic learning ecosystem (Yetti, 2024).

Students can gain learning experiences from various sources, including their immediate environment. These learning experiences serve as a foundation of knowledge and inspiration for initiating future-oriented ventures grounded in local wisdom from their surroundings (Munir, Merlinda, Soesilo, & Windrayadi, 2021). Project-based learning (PBL) offers a solution by applying experiential learning approaches (Diana & Sukma, 2021). Project-based learning is specifically implemented through activities conducted outside the classroom, thereby providing students with opportunities to explore ideas, think creatively and independently, and develop entrepreneurial skills (Afifi & Yulisma, 2020; Oni, Agbobli, & Iwu, 2019). Student-led projects are designed to increase engagement in learning and train them to directly solve real-life problems, particularly those found in their local communities (Irawan, Zulhijrah, & Prastowo, 2023). This emphasizes the importance of integrating local wisdom into entrepreneurship education to create contextual, sustainable, and community-relevant learning. Local wisdom can serve as a source of knowledge and values that guide actions and behaviors in everyday life (Uge, Neolaka, & Yasin, 2019).

Tilaar (2015) posits that local wisdom holds pedagogical value for learning processes and knowledge adaptation, helping students align with and maintain harmony with their physical and natural environment. Local wisdom may take the form of basic needs, distinctive cultural traits, and values upheld by the local community (Puspitasari & Priatmoko, 2022). These values, derived from local customs and traditions, influence the behavioral patterns of entrepreneurs, who often serve as role models in their communities (Aryani, 2019). In the Indonesian context, local wisdom encompasses cultural values, knowledge, and practices that can enrich project-based entrepreneurship education. Integrating local wisdom into the learning process shifts the focus beyond technical aspects of entrepreneurship to also instill cultural values that support sustainability and social inclusion (Susilorini, 2022). Previous studies have found that experiential learning encourages students to actively engage in field-based entrepreneurial activities by prioritizing local values (Munir et al., 2021). The reconstruction of entrepreneurship learning models based on local wisdom-shaped by environmental factors-serves as a useful framework for entrepreneurship development among students (Africano, 2023; Aryani, 2019).

Nevertheless, integrating local wisdom into the learning process still faces several challenges, one of which is the lack of valid and reliable instruments to measure its implementation. Existing instruments have not been specifically designed to evaluate the extent to which local wisdom is adopted within project-based learning settings (Africano, 2023; Retnowati, Istiadi, & Istiana, 2019; Yetti, 2024). Therefore, it is necessary to develop assessment tools that can assist educators and researchers in evaluating the effectiveness of local wisdom integration. Instrument validation is a crucial step in constructing a reliable assessment tool that provides accurate information about learning outcomes. This process ensures that the instrument is appropriate, relevant, and effective in measuring the intended competencies or aspects within entrepreneurship education (Magara, Copriady, & Linda, 2021). This study is motivated by the

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limited number of investigations specifically focusing on the validation of instruments for integrating local wisdom into project-based entrepreneurship education. Consequently, this research aims to develop and validate an instrument of banyumasan-javanese local wisdom into the learning process. It is expected that the findings will contribute significantly to improving the quality of project-based entrepreneurship learning that is both contextual and culturally relevant.

Materials and Methods

Banyumas Value and Local Wisdom

According to Putu Oka Ngakan as cited in (Putri, Septipane, Sulistiawati, & Mumung, 2023), local wisdom refers to a set of values or behavioral norms embraced by a community in their interaction and socialization with their environment. It encompasses ideas, values, and perspectives that are indigenous, wise, culturally rich, and regarded as socially beneficial, which are upheld by members of the community (Siswadhi et al., 2020). Banyumasan local wisdom reflects the cultural identity of the Banyumas region, rooted in the history and traditions of communities residing around Mount Slamet and the Serayu River. The authors found that the unique historical, geographical, and agrarian context of Banyumas, being relatively distant from the Javanese royal courts has shaped a distinct local culture. This uniqueness characterizes the Banyumas people, known as *Wong Panginyongan* (Dadan, 2021). The *Panginyongan* community is symbolized by the character *Bawor* in traditional *wayang* (shadow puppet) performances. *Bawor* represents the cultural identity of Banyumas as a fusion of multiple cultural streams, Javanese, Sundanese, Hindu-Buddhist, Islamic, Chinese, Western, and indigenous Banyumas traditions. *Bawor* is portrayed as the embodiment of the *Panginyongan* people: rural, humble, relatively inexperienced, yet intelligent, candid, courageous, and honest (Dadan, 2021).

Priyadi, Karton, and Widayati (2015) in their study of Babad Pasir and Babad Banyumas (historical manuscripts), identified a four-layered model of Banyumas society's character: (1) core character, unique traits such as egalitarianism, freedom, and openness, culminating in the essence of the Banyumas identity: *cablaka* (blunt honesty); (2) distinct character, shaped by the region's enduring legends; (3) historical background, the historical narrative of Banyumas; (4) general character, common social behaviors found in everyday life. These local wisdom elements are reflected in the values of locality that are deeply embedded in the Banyumas community.

Methods

This study employed a mixed-methods approach with an exploratory design, combining qualitative and quantitative methods. The approach began with qualitative data exploration for instrument development, followed by quantitative validation to assess the instrument's validity and reliability. Creswell and Creswell, (2017) state that this strategy integrates quantitative data to support the interpretation of qualitative findings, making it appropriate for researchers developing new instruments. The qualitative strand uses in-depth interviews and oral history, these appropriate for capturing first-hand recollections of significant cultural or historical events from a single knowledgeable witness followed by systematic coding (open–axial–selective), thematic analysis, and expert-judgment triangulation to corroborate interpretations. The quantitative strand establishes robustness measurement quality through content validity ratio (CVR) assessed by five experts with diverse backgrounds (history enthusiast, academic scholar, and officials from the local bureau of culture), complemented by Aiken's V for item-level content validity. To model causal relationships among criteria, we apply fuzzy DEMATEL (Mahmoudi et al., 2019), and we evaluate internal consistency reliability using Cronbach's alpha. Together, these procedures provide convergent evidence for construct validity, credible causal structuring of factors, and reliable measurement (Hair et al., 2017). The primary goal of the study was to produce a valid and reliable instrument to measure the integration of local wisdom into project-based entrepreneurship education. In conclusion, this study employs a two-step approach, each serving a distinct purpose.

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To address the research questions and achieve the objectives, the research methodology is divided into the following two steps as following Figure 1.

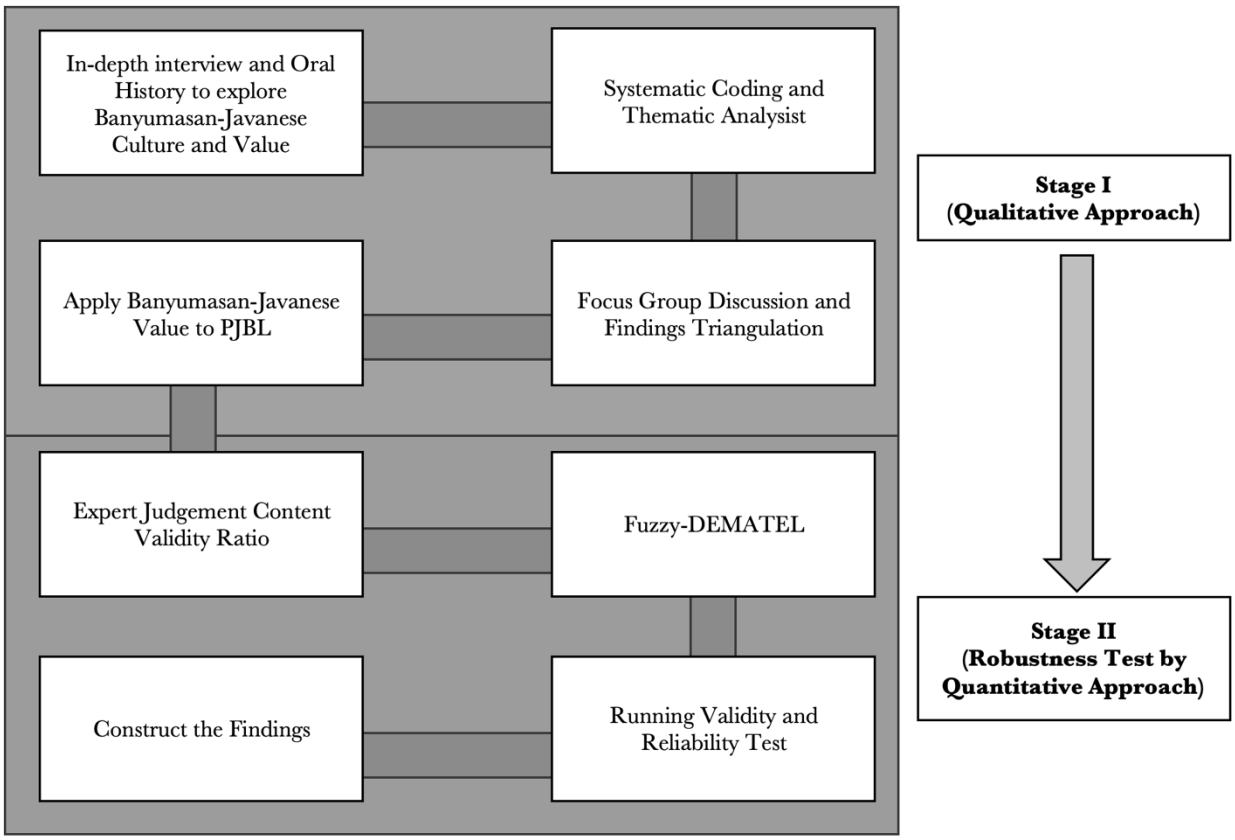

Figure 1. Research Design Model

Data Resources and Collecting

Key Informant: In-depth Interview & Oral History (Qualitative)

Primary data were obtained from a single key informant, Ahmad Tohari, using a semi-structured in-depth interview complemented by an oral-history protocol to capture first-hand recollections of significant cultural/historical events. Sessions were audio-recorded (with consent), transcribed verbatim, and anonymized where appropriate. Ahmad Tohari, a Banyumas native culture enthusiast, noted that the Banyumas people are generally sincere and straightforward, much like the *Bawor* character. Ahmad Tohari is a celebrated Indonesian novelist and cultural essayist whose portfolio is anchored by the landmark *Ronggeng Dukuh Paruk* trilogy (Eng. The Dancer), translated into multiple languages and adapted into the award-winning film *Sang Penari* (2011). Beyond the trilogy, he has authored acclaimed works such as *Kubah, Di Kaki Bukit Cibalak, Bekisar Merah, Senyum Karyamin, and Mata yang Enak Dipandang*, while consistently publishing cultural commentaries in national media. His career spans journalism, serving on editorial staffs in Jakarta and international recognition, notably the International Writing Program at the University of Iowa (1990) and honors including the SEA Write Award (1995) and the Rancagé Literary Award (2007). Rooted in Purwokerto/Banyumas, Tohari is a passionate champion of Banyumas culture (See Figure 2). His fiction preserves the textures of rural Banyumas life, its Banyumasan diction, humor, communal ethics, and performing arts such as

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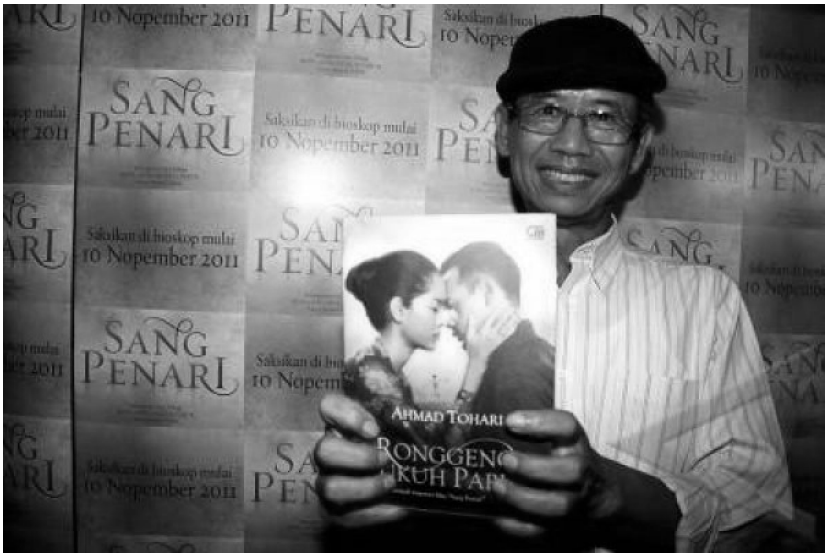
tayub/ronggeng, bringing local memory into national and global conversation. Through essays, talks, and mentorship, he advances cultural literacy and inspires emerging writers from the region, ensuring Banyumas's voices and values remain vivid and contemporary. Through lifelong engagement and an oeuvre with ethnographic depth, Ahmad Tohari is a highly credible key informant on Banyumasan–Javanese culture and values, widely cited and trusted for authentic perspective.



Source: Antara Press Documentary, 2025

Figure 2. Ahmad Tohari

FGD, Triangulation, and Expert Judgement (Qualitative)

A focus group discussion (FGD) was conducted to probe, contrast, and clarify emerging themes. Five experts comprising a humanities scholar, a history enthusiast, and local bureau of culture representatives provided expert judgement to assess credibility and cultural accuracy. Methodological triangulation combined interview/oral-history narratives, FGD insights, and expert review memos to consolidate or challenge interpretations. The study involved five experts as participants, including entrepreneurship education specialists, local cultural practitioners, and educational instrument developers. These experts played dual roles: first, they evaluated the instructional design to ensure alignment with project-based learning principles and relevant local wisdom values; second, they assessed the relevance, clarity, and adequacy of the instrument items concerning the concepts of local wisdom and project-based entrepreneurship learning. Furthermore, the experts provided input on the indicators, dimensions, and item formulations to ensure the instrument met the research objectives. Expert feedback was used to revise and refine the instrument prior to pilot testing with respondents. Table 1 presents the background used for expert selection to ensure their academic and practical expertise were aligned with the study's requirements. Additional participants included students from Jenderal Soedirman University who had experienced project-based learning infused with local wisdom content. The student sample was selected using purposive sampling to ensure the involvement of relevant participants.

Table 1. Expert Selection Criteria

No.	Category	Affiliate	Expertise	Purpose
Inf1	Entrepreneurship Scholar	Jenderal Soedirman University	Head of Entrepreneurship Laboratory	Assess the relevance of content

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No.	Category	Affiliate	Expertise	Purpose
Inf2	Entrepreneurship Scholar	Jenderal Soedirman University	Entrepreneurship Program Mentor	Provide practical input on implementation
Inf3	Local Cultural Expert	Editor-in-chief of Ancas magazine	Banyumasan Cultural Figure	Review authenticity and representation of cultural values
Inf4	Local Cultural Expert	Author of the book Banyumasan Culture	Banyumasan Cultural Figure	Assess the appropriateness of local terms and values
Inf5	Educational Instrument Developer	Jenderal Soedirman University	Entrepreneurship Lecturer	Evaluate the appropriateness of assessment instruments and learning rubrics

Survey for Measurement Testing (Quantitative)

A structured questionnaire was administered to entrepreneurship and business students to evaluate the measurement instrument. Items were derived from the qualitative phase and literature alignment (Creswell and Creswell, 2020). In the quantitative phase, the questionnaire was distributed to entrepreneurship and business students who met strict inclusion criteria: (i) were in their 3rd–4th year of study, (ii) had completed at least one entrepreneurship course, and (iii) were completed a Project-Based Learning (PjBL) class. These criteria ensured respondents possessed sufficient disciplinary exposure and experiential learning context to validly assess the measurement instrument. Eligibility was verified via self-screening items at the start of the survey.

Data Analysis

Data analysis was conducted using both qualitative and quantitative methods with different measurement approaches. The qualitative analysis employed thematic analysis of interview and observation data to evaluate the instructional design, ensuring its suitability with the project-based approach and the integration of local wisdom values. We analyzed the interview and oral-history materials in MAXQDA using a coding-to-theory pipeline. MAXQDA is an exceptional software tool designed specifically for qualitative research, offering advanced capabilities for data management, coding, analysis, and visualization. The analysis process involved identifying concepts and their relationships using analysis tools and visualization within MAXQDA. First, we conducted open, axial, and selective coding to surface key concepts, link categories, and integrate a core theme, Banyumasan–Javanese values within PjBL. Throughout analysis we maintained strict codebook governance with clear definitions and inclusion/exclusion rules, supported by an audit trail of memos and code revisions. To enhance interpretation and trustworthiness, we performed member-checking with the key informant, held expert debriefs, and triangulated insights with FGD notes (Creswell and Creswell, 2020). This process yielded saturated themes, well-defined value dimensions, and candidate indicators that informed instrument development and served as criteria inputs for the subsequent Fuzzy-DEMATEL stage.

Afterward, to ssessing the quality of the identified Banyumasan–Javanese values within PjBL, the fuzzy DEMATEL method has been applied in various fields to identify key influencing factors (Mavi & Standing, 2018). The fuzzy DEMATEL can identify the possibility of indirect relationships between proposed criteria, determine cause-and-effect relationships, and correlation levels among different dimensions or criteria. Hence, this study develops the fuzzy DEMATEL to assess the elements of the Banyumasan–Javanese values within PjBL by identified criteria. In this study, the Fuzzy DEMATEL stages include creating a fuzzy linguistic scale, establishing a directional relation matrix, converting the direct-relation matrix, and generating a total-relation matrix, as the following steps (Mahmoudi et al., 2019):

1) Creating a fuzzy linguistic scale for fuzzy DEMATEL factors
   Incorporating fuzzy theory into the DEMATEL method, Lin & Wu (2008) introduced fuzzy linguistic variables, allowing experts to assess and assign scores to the causal relationships and significance among various criteria within a fuzzy and uncertain context. Fuzzy set theory, commonly referred to as fuzzy logic, operates on the

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concept of "degrees of truth" instead of the typical binary distinction between "true or false" (like the 1 or 0 in Boolean logic) for describing an object or system. Table 2 outlines the triangular fuzzy numbers linked to the linguistic variables established by the fuzzy DEMATEL approach.

Table 2. The Fuzzy DEMATEL scale

Scale	Linguistic scale	Triangular Fuzzy Number (l,m,u)
1	Equal importance	(1,1,1)
2	Between weak importance and equal importance	(1,2,3)
3	Weak importance	(2,3,4)
4	Between essential importance and weak importance	(3,4,5)
5	Essential importance	(4,5,6)
6	Between demonstrated importance and essential importance	(5,6,7)
7	Demonstrated importance	(6,7,8)
8	Between absolute importance and demonstrated importance	(7,8,9)
9	Absolute importance	(8,9,10)

Source: Lin and Wu, 2008

2) Establishing a directional relation matrix
In this section, we present the identified Banyumasan–Javanese values within PjBL to experts, including scholars, regulatory authorities, and professionals, for their evaluation and assessment. Based on the input from experts obtained through the questionnaire survey, a comparison is made to understand how criteria relate and influence each other. This section serves to evaluate the triangular fuzzy numbers, which represent the expert opinions on the degree of influence one criterion has on another. Once the evaluation scores provided by experts are transformed into fuzzy numbers, they are simplified to facilitate further calculations. For this purpose, the fuzzy DEMATEL software is employed in this study to calculate the specific weight of each criterion.
3) Converting the direct-relation matrix into a normalized direct-relation matrix
A direct-relation matrix can be normalized by utilizing the maximum sum from either the column or row vectors as the benchmark for normalization.
4) Generating a total-relation matrix
The dimensions and criteria involved in the decision-making process are not solely impacted by a single factor. The matrix reaches a state of equilibrium (where the influence value becomes zero), resulting in the creation of the total-relation matrix

Following the Fuzzy-DEMATEL stage, all items/criteria underwent Content Validity Ratio (CVR) screening with five experts. The content validity ratio (CVR) is a statistical method used to assess how relevant a test's items are based on subject matter experts' ratings. It is calculated using Lawshe's formula, which takes the number of experts who rate an item as "essential" and subtracts half the total number of panelists, then divides the result by half the total number of panelists. The CVR is a score between -1 and +1, where a higher positive value indicates greater agreement that the item is essential to the test's purpose (Lawshe, 1986; Rutherford-Hemming, 2018). For robustness, Aiken's V provided additional content validity (retain if ≥.70), and Cronbach's alpha evaluated internal consistency by construct ($\alpha \geq .70$ acceptable) (Hair et al., 2019).

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Results and Discussion

Banyumasan-Javanese (The Local Wisdom Values of Banyumas-Java)

Ahmad Tohari, a cultural figure native to Banyumas, noted that the Banyumas people are generally sincere and straightforward, much like the *Bawor* character. Furthermore, Priyadi, Karton, and Widayati (2015) in their study of Babad Pasir and Babad Banyumas (historical manuscripts), identified a four-layered model of Banyumas society's character: (1) core character, unique traits such as egalitarianism, freedom, and openness, culminating in the essence of the Banyumas identity: *cablaka* (blunt honesty); (2) distinct character, shaped by the region's enduring legends; (3) historical background, the historical narrative of Banyumas; (4) general character, common social behaviors found in everyday life. These local wisdom elements are reflected in the values of locality that are deeply embedded in the Banyumas community. Based on an in-depth interview and a research process that explored local wisdom twelve core local wisdom values were identified that represent the unique identity of the Banyumasan people. These values are described as follows:

Table 3. Local Wisdom Values of Banyumasan

No.	Value	Explanation
1	*Ngalim*	The Banyumasan word for religious means values that reflect a person's obedience, belief and attitude in religion and their relationship with God.
2	*Cablaka*	The language used by the Banyumas people is known for its *ngapak* accent or is now officially called the *Panginyongan* Language.
3	*Ana Nyong Ana Ko*	The expression in the Banyumas language which means egalitarian or equality, reflects the unique and distinctive Banyumas culture even though it remains part of Javanese culture in general.
4	*Cancut Tali Wanda*	An expression in the Banyumas language that reflects a spirit of diligence and agility, and contains the values of hard work, never giving up, optimism, patience, and struggle.
5	*Grapyak*	The local wisdom values of Banyumasan reflect a friendly, open, and honest attitude, in line with the *cablaka* (what is) character and egalitarian nature of the Banyumas people who uphold equality without distinguishing social strata.
6	*Sambatan*	The life of the people in the Banyumas region in principle, follows the Javanese kinship system which is full of a sense of brotherhood and family.
7	*Prewira*	The *Bawor* puppet character represents the character of the Banyumas people who have a chivalrous spirit, namely having a good personality, being responsible, brave, honest, tolerant, helpful, and prioritizing common interests.
8	*Ajur Ajer*	The local wisdom values of Banyumasan reflect a flexible nature, namely the ability to adapt well and flexibly in various situations or circumstances.
9	*Guyub Rukun*	A social condition that is full of harmony, harmony, and mutual avoidance of conflict.

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No.	Value	Explanation
10	*Pertingkah*	A term in Banyumasan language that has a strategic meaning, namely relating to careful and targeted planning to achieve certain goals.
11	*Pawehan*	The local wisdom values of Banyumasan represent the meaning of usefulness or quality that provides benefits or usefulness for oneself and others.
12	*Mandireng Pribadi*	Not dependent on others and reflected in behavior that takes initiative, is self-confident, able to overcome obstacles, and does things independently.

(Source: Research Results, 2025)

These identified values are intended to be integrated into project-based learning in higher education, particularly in entrepreneurship courses. Through local wisdom, students are introduced to the cultural values that exist in their surrounding environment. Embedding education with local wisdom is considered an effective strategy for instilling character and local cultural values (Suttrisno & Rofi'ah, 2023). Previous studies have shown that integrating local wisdom into the curriculum enhances students' comprehension of academic content, increases learning motivation, and supports the preservation of local culture (Harefa, 2024). Project-based learning fosters student independence in problem-solving while allowing them to encounter and reflect on local cultural values in each learning topic (Cahyaningsih, Suprijati, & Azy, 2025). It is therefore crucial to align curriculum objectives with local cultural components and encourage educators to adopt innovative teaching approaches (Anwar, Sa'dijah, Hidayah, & Abdullah, 2024). The aforementioned local wisdom values have been embedded in each stage of the project-based learning process. These values serve as tacit knowledge, implicitly acquired by students through lived experiences, habits, and unwritten traditions

The Adoption of Banyumasan-Javanese Local Wisdom on The Education Environment

The design of the project-based entrepreneurship learning implementation was developed to ensure its alignment with the values of local wisdom. The development process involved literature review and interviews to identify the dimensions and indicators of local wisdom relevant to entrepreneurship education. These dimensions were categorized into four core areas: culture, customs, behavioral norms, and worldview. According to Siswadhi, Carolina, and Marselina (2020), local wisdom refers to ideas, values, and perspectives that emerge within a local context, reflecting wisdom, virtue, and practical application in community life. These four dimensions were used as value constructs to be implemented in project-based entrepreneurship learning. The integration of local wisdom values was adapted from the stages of applying knowledge through wisdom as proposed by Sternberg (2001), as illustrated in Figure 3. The instrument development process was guided by the framework proposed by Arifin (2012), consisting of five stages: (1) determining the assessment objectives; (2) constructing the blueprint; (3) developing the instrument draft; (4) conducting trials and item analysis; and (5) revising and assembling the final instrument. The instrument took the form of a 5-point Likert scale questionnaire, covering aspects of local wisdom values and the effectiveness of the implemented instructional design. The assessment criteria for project-based learning were adapted from (Guo, Saab, Post, & Admiraal, 2020), who emphasized evaluating project-based learning outcomes with a focus on student results. These criteria include four dimensions are cognitive outcomes (knowledge dan cognitive strategies); affective outcomes (perceptions of the benefits of PjBL dan perceptions of the experience of PjBL); behavioral outcomes (skills dan engagement); artifact performance.

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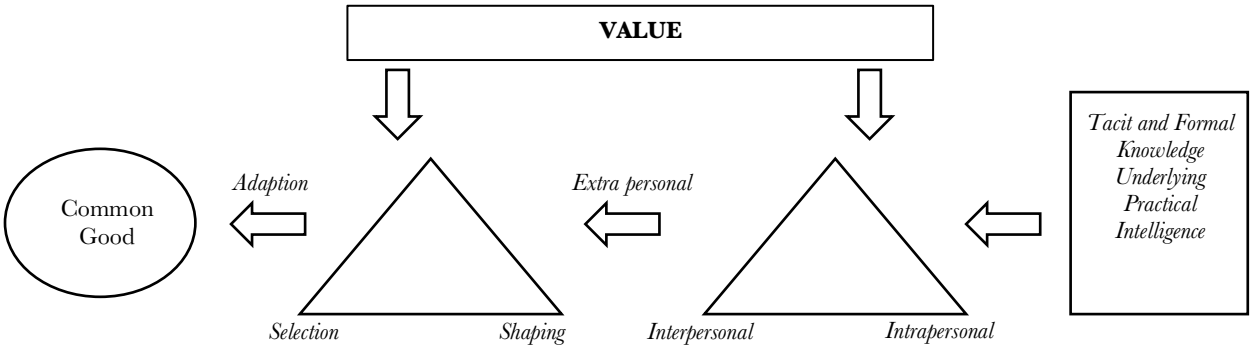

Figure 3. Stages of Knowledge Application through Wisdom

The framework for Integrating local wisdom values Is adapted from Sternberg (2001), stages of applying knowledge through wisdom, as illustrated in Figure 3. The first stage begins with understanding both tacit and formal knowledge, which serve as the foundation for developing practical intelligence. Tacit knowledge is embedded in habits, intuition, and individual skills, as well as in socially constructed knowledge within groups or organizations (Alves & Pinheiro, 2022; Howells, 1996). Tacit knowledge is implicit, acquired through direct experience, and often difficult to articulate or formally transfer. There is a growing need to embed tacit knowledge as a central theme in higher education to cultivate globally competent individuals who are increasingly specialized and diverse (Mulej & Sirca, 2010). On the other hand, formal knowledge is explicit and systematic, typically acquired through structured education or training programs. At present, the inclusion of local wisdom in formal education remains limited, often confined to classroom instruction and occasional field visits, without a supporting system that fosters peer knowledge exchange, rendering it less practical (Watthanakuljaroen, 2023). This is supported by (Nurpratiwiningsih, Rusdarti, Widodo, & Sanjoto, 2023), who argue that local wisdom-based learning still faces significant challenges, particularly in terms of resources, and has yet to be fully integrated into formal education systems.

The second stage involves the complementarity of these two types of knowledge as the foundation for developing practical intelligence namely, the ability to make wise decisions in real-life situations based on social context and prevailing community values. This initial process is a crucial phase that encourages individuals or groups to recognize, explore, and internalize culturally embedded knowledge as the foundation for meaningful and value-driven actions. Incorporating local wisdom values into educational programs motivates learners to appreciate and embrace their cultural heritage in a simple yet impactful way, transforming it into a set of personal values (Suttrisno & Rofi'ah, 2023). The second stage also includes the selection and adaptation of knowledge. Learners begin to filter relevant local knowledge in accordance with the learning context and needs. This knowledge is not merely inherited; it is critically assessed and adapted for effective integration into the learning process. Adapting local wisdom to contemporary developments strengthens cultural identity (Luqmi, Abas, Istiana, & Karmila, 2025). This adaptive process is essential for keeping local wisdom alive and functional in addressing the new challenges faced in education.

The third stage involves the application of these values, now understood and adapted within the project-based learning process, as a guiding moral and ethical framework for the implementation of knowledge. These values refer to the twelve core Banyumasan local wisdom values, serving as moral compasses that guide how knowledge should be applied. These values act as ethical references in everyday life, particularly in the context of knowledge utilization (Rasdia & Hernah, 2024). This reflects the understanding that knowledge is not value-neutral but is instead shaped by local cultural values (Ningrum, 2016; Suttrisno & Rofi'ah, 2023). Thus, values provide direction and meaning to the

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use of local wisdom, ensuring that its application remains rooted in the common good and reinforces the cultural identity of the local community.

Table 4 presents the results of the content validity test conducted on the evaluation instrument for entrepreneurship project-based learning integrated with local wisdom. The evaluation rubric was developed based on four project-based learning assessment criteria proposed by (Guo et al., 2020), along with the twelve identified Banyumasan local wisdom values. This study employed the Aiken's V index to assess content validity, including aspects such as language appropriateness.

Table 4. Banyumasan-Javanese Local Wisdom-Based Entrepreneurship Project Learning

No.	Indicator	Primary category → sub-criterion	Description
1	*Ajur Ajer* (flexible/adaptive)	Cognitive outcomes → Cognitive strategies	Reflects adaptive planning, strategy shifting, and problem-solving heuristics.
2	*Pertingkah* (strategic/targeted planning)	Cognitive outcomes → Cognitive strategies	Directly expresses planning, goal alignment, and prioritization skills.
3	*Pawehan* (usefulness/utility)	Affective outcomes → Perceptions of the benefits of PJBL	Shapes perceived value/impact of learning and project outcomes.
4	*Ngalim* (religiosity/ethics)	Affective outcomes → Perceptions of the experience of PJBL	Shapes attitudes, ethical sensitivity, and reflective stance during projects.
5	*Guyub Rukun* (Harmony, conflict avoidance)	Affective outcomes → Perceptions of the experience of PJBL	Affects perceived climate, cohesion, and satisfaction.
6	*Prewira* (Chivalry: responsibility, bravery)	Behavioral outcomes → Skills	Maps to leadership, decision-taking, responsible risk-taking.
7	*Mandireng Pribadi* (self-reliance)	Behavioral outcomes → Skills	Evident in initiative, autonomous task execution, and self-management.
8	*Cablaka* (ngapak/Panginyongan frankness)	Behavioral outcomes → Engagement	Drives open, honest communication and feedback cycles in teams.
9	*Ana Nyong Ana Ko* (egalitarian/equality)	Behavioral outcomes → Engagement	Encourages inclusive teamwork and equal participation.

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No.	Indicator	Primary category → sub-criterion	Description
10	*Cancut Tali Wanda* (diligence, perseverance)	Behavioral outcomes → Engagement	Manifests as sustained effort, task follow-through, and grit.
11	*Grapyak* (friendly, open, honest)	Behavioral outcomes → Engagement	Builds collaborative climate; promotes prosocial interaction.
12	*Sambatan* (mutual cooperation)	Behavioral outcomes → Engagement	Core to collaborative work and shared responsibility in PJBL.

(Source: Research Results, 2025)

This indicator–outcome mapping was conducted by the author using semantic similarity between each Banyumasan–Javanese value and the intended learning outcomes of PJBL. Placement decisions were theory-informed rather than purely intuitive. For the cognitive outcomes (*Ajur Ajer* → adaptive strategies; *Pertingkah* → strategic planning), we drew on the revised Bloom taxonomy (Anderson & Krathwohl, 2001; planning, monitoring, evaluating as higher-order cognition), metacognition/self-regulated learning (Flavell, 1979; Zimmerman, 2000), and problem-solving heuristics in project settings. Affective outcomes (*Ngalim; Guyub Rukun; Pawehan*) align with Krathwohl's affective taxonomy (Krathwohl, Bloom, & Masia, 1964), values-congruence literature, and PJBL work on perceived value and climate. Behavioral outcomes (*Cablaka, Ana Nyong Ana Ko, Cancut Tali Wanda, Grapyak, Sambatan, Prewira, Mandireng Pribadi*) are justified by social interdependence/cooperative learning (Johnson & Johnson, 1989/1999), psychological safety & candid communication (Edmondson, 1999) for cablaka, grit/perseverance (Duckworth et al., 2007) for Cancut Tali Wanda, prosocial collaboration for *Sambatan*, and autonomy/competence/relatedness from Self-Determination Theory (Deci & Ryan, 1985; 2000) for mandireng *pribadi*, leadership (*prewira*), and egalitarian engagement (*ana nyong ana ko*). For the artifact performance rubric, alignment follows performance assessment principles (Wiggins, 1998) and PBL "Gold Standard" product criteria (Larmer, Mergendoller, & Boss, 2015) which map to *Pawehan* (usefulness), *Pertingkah* (strategic coherence), *Ajur Ajer* (adaptiveness), and communicative authenticity (*Cablaka/Guyub Rukun*).

Triangulation of Findings

The revision process was also conducted qualitatively and in detail, particularly for specific components identified by experts as requiring improvement. The content covering local wisdom values and the validated and reliable project-based learning assessment rubric was then returned to the experts for a final round of evaluation. At this stage, the preliminary product of local wisdom, emerging from the adaptation process of local values known as selection adaptation, was integrated into the learning process as both tacit and formal knowledge, forming a comprehensive initial product. Experts provided several technical suggestions regarding this initial product. Ahmad Tohari, a renowned cultural figure from Banyumas, noted that some of the local wisdom values were still expressed using general Indonesian terms, such as religious which should be translated to *ngalim*, openness to *grapyak*, flexible to *ajur ajer*, and beneficial to *pawehan*. These changes emphasize the importance of using authentic local cultural terminology when formulating local wisdom values. Language is not merely a means of communication but also a vehicle of values, identity, and worldview of local communities (Farhaeni & Martini, 2024). The use of overly general Indonesian terms tends to inadequately represent the soul and cultural nuances of Banyumasan traditions. Learners should not only understand the values theoretically but also experience an emotional connection to them, which facilitates deeper internalization in daily life.

One of the instructional design experts emphasized that the local wisdom values incorporated into the learning process must be accompanied by concrete implementation contexts within project-based entrepreneurship learning.

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This ensures a more holistic internalization of values The researcher strengthened the learning design by adding lesson plans and technical implementation guidelines that align with the learning objectives. Teachers are required to possess the necessary skills in planning local wisdom based project learning, as it can serve as an alternative pedagogical model capable of delivering meaningful learning experiences for students (Cahyaningsih et al., 2025). Additionally, the researcher emphasized process-oriented assessment through the rubric developed in this study along with student self-reflection. This approach ensures that learning goes beyond the cognitive domain to include affective and psychomotor aspects as well, aligning with the essence of character education, which promotes local wisdom as a source of values (Sari, 2020). This approach is expected to foster cultural awareness while enhancing students' collaboration, creativity, and problem-solving skills within their local context. By integrating feedback from both cultural and educational experts, the initial project-based learning product incorporating local wisdom was refined both conceptually and technically, ensuring it is not only academically valid but also contextually relevant and meaningful from cultural and pedagogical perspectives.

Fuzzy Dematel

Table 5 shows all 12 indicators meet the criterion (> 0.50). In Fuzzy-DEMATEL, the Weight Score reflects each item's causal prominence within the PJBL system; scores at/above the cut-off indicate items that are not only conceptually sound but also structurally consequential. The Fuzzy-DEMATEL output again centers behavioral outcomes as the dominant driver of PJBL effectiveness (Total Weight Average 0.648), with affective next (0.608) and cognitive close behind (0.602). Using the overall mean prominence = 0.619 as a validation/prioritization cut-off, seven indicators are structurally consequential and should be foregrounded in design and assessment: *Prewira* (0.774), *Cancut Tali Wanda* (0.711), *Guyub Rukun* (0.704), *Cablaka* (0.679), *Mandireng Pribadi* (0.675), *Grapyak* (0.656), and the top cognitive lever *Ajur Ajer* (0.651). Items low cut-off including *Pawehan* (0.581), *Pertingkah* (0.553), *Sambatan* (0.532), *Ngalim* (0.539), *Ana Nyong Ana Ko* (0.510) remain conceptually valuable.

Table 5. Fuzzy-DEMATEL Output

Dimension	Criteria	Weight	Score	Weight Score	Rank	Total Weight Score	Total Weight Average	Total Rank
Cognitive Outcome	*Ajur Ajer (flexible/adaptive)*	0.093	7	0.651	7	1.204	0.602	3
	Pertingkah (strategic/targeted planning)	0.079	7	0.553	9			
Affective Outcomes	Pawehan (usefulness/utility)	0.083	7	0.581	8	1.824	0.608	2
	Ngalim (religiosity/ethics)	0.077	7	0.539	10			
	Guyub Rukun (Harmony, conflict avoidance)	0.088	8	0.704	3			
Behavioral Outcomes	Prewira (Chivalry: responsibility, bravery)	0.086	9	0.774	1	4.537	0.648	1

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Dimension	Criteria	Weight	Score	Weight Score	Rank	Total Weight Score	Total Weight Average	Total Rank
	Mandireng Pribadi (self-reliance)	0.075	9	0.675	5			
	Cablaka (ngapak/Panginyongan frankness)	0.097	7	0.679	4			
	Ana Nyong Ana Ko (egalitarian/equality)	0.085	6	0.51	12			
	Cancut Tali Wanda (diligence, perseverance)	0.079	9	0.711	2			
	Grapyak (friendly, open, honest)	0.082	8	0.656	6			
	Sambatan (mutual cooperation)	0.076	7	0.532	11			
Total Criterion Weight		1.000				7.565	0.619	

In the Fuzzy-DEMATEL table, the Total Weight Score = 7.565 is the sum of all twelve Weight Scores; because your decision cut-off is 0.50, the neutral baseline for the set would be 12×0.50=6.00. Since 7.565 > 6.00, the indicator set as a whole demonstrates important causal prominence in the PJBL system. Dividing by 12 yields the Total Weight Average = 0.619, which you can use as a reference threshold: items at or above 0.619 are above the overall prominence average and therefore priority levers. The Rank column orders individual indicators by their Weight Score (1 = strongest), showing *Prewira* (0.774) as most influential, followed by *Cancut Tali Wanda* (0.711), *Guyub Rukun* (0.704), *Cablaka* (0.679), *Mandireng Pribadi* (0.675), *Grapyak* (0.656), *Ajur Ajer* (0.651). The Total Rank at the dimension level compares summed scores and averages within each dimension, indicating that Behavioral outcomes are most influential overall (Total Weight Average 0.648), followed by Affective (0.608) and Cognitive (0.602). Substantively, this pattern says PJBL gains hinge most on leadership/responsibility, perseverance, harmonious-yet-candid collaboration, self-reliance, and friendliness, with adaptive strategy the key cognitive support and affective climate has strengthened.

Validity and Reliability Instrument

Instrument quality was evaluated for content validity using Aiken's V and for internal consistency reliability using Cronbach's alpha. Five experts (scholar, history enthusiast, local bureau of culture) rated each item's relevance on an ordinal scale; we computed Aiken's V and retained items with $V \geq 0.70$ (borderline items were revised using expert comments), optionally reporting 95% CIs to document precision (Hair et al., 2019). The refined instrument was then administered to eligible entrepreneurship and business students (3rd–4th year, completed entrepreneurship, involved in PJBL) and analyzed for reliability: we calculated Cronbach's α by construct, targeting $\alpha \geq 0.70$ (acceptable), ≥ 0.80 (good), and ≥ 0.90 (excellent), and inspected corrected item–total correlations ≥ 0.30 plus alpha-if-item-deleted to identify any items degrading scale coherence (Hair et al., 2019). Together, Aiken's V ensures content adequacy and relevance, while Cronbach's alpha confirms consistent measurement across items.

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Table 6. *Validity and Reliability*

Dimension	Criteria	Aikens' Value	Cronbach alpha
Cognitive Outcome	*Ajur Ajer (flexible/adaptive)*	0.95	0.823
	Pertingkah (strategic/targeted planning)	0.8	
Affective Outcomes	Pawehan (usefulness/utility)	0.85	0.888
	Ngalim (religiosity/ethics)	0.85	
	Guyub Rukun (Harmony, conflict avoidance)	0.95	
	Prewira (Chivalry: responsibility, bravery)	0.8	
	Mandireng Pribadi (self-reliance)	0.85	
Behavioral Outcomes	Cablaka (ngapak/Panginyongan frankness)	0.8	0.811
	Ana Nyong Ana Ko (egalitarian/equality)	0.85	
	Cancut Tali Wanda (diligence, perseverance)	0.85	
	Grapyak (friendly, open, honest)	0.95	
	Sambatan (mutual cooperation)	0.95	

All items clear the content-validity threshold: Aiken's V ranges 0.80–0.95, indicating at least good (≥0.80) to excellent (≥0.90) expert agreement. The strongest content evidence is for *Ajur Ajer, Guyub Rukun, Grapyak*, and *Sambatan* (all 0.95), while *Pertingkah, Prewira*, and *Cablaka* sit at the lower bound (0.80) acceptable but candidates for minor wording/examples refinement. Reliability is solid across constructs: Cognitive Outcomes α=0.823, Affective Outcomes α=0.888, and Behavioral Outcomes α=0.811, all ≥0.80 (good internal consistency). Overall, the instrument demonstrates good content validity and reliability; prioritize monitoring the three 0.80 items in alpha-if-deleted and item–total diagnostics, but no deletions are warranted based on these results.

Conclusions

In the effort to develop a project-based entrepreneurship learning instrument rooted in local wisdom, this study adopted a five-stage development approach based on Arifin (2012), goal formulation, blueprint design, draft development, trial and analysis, and revision. Local wisdom values were identified through literature review and interviews, based on four refined dimensions: culture, customs, behavioral norms, and worldview. The findings revealed twelve core Banyumasan local wisdom values to be implemented in the project-based learning process: *ngalim, cablaka, ana nyong ana ko, cancut tali wanda, grapyak, Sambatan, prewira, ajur ajer, guyub rukun, pertingkah, pawehan, and mandireng pribadi.* Content validity testing using Aiken's V indicated that all local wisdom items possessed very high content validity, with the lowest V-value recorded at 0.85. This study integrates these local values into the project-based learning process using the framework of Sternberg (2001), which consists of three stages. Furthermore, the assessment criteria for project-based learning were adapted from Guo et al. (2020), consisting of four criteria, seven indicators, and fifteen items. These indicators were rigorously tested through a project-based learning assessment rubric grounded in local wisdom. Content validity testing using Aiken's V yielded very high values, with all items scoring above 0.80. The instrument also demonstrated strong reliability, with a Cronbach's Alpha of 0.909, exceeding the recommended threshold of 0.70.

The findings of this study present several significant implications for the development of project-based entrepreneurship education that integrates local wisdom values. he validated instrument demonstrates that local wisdom values such as *ngalim, Sambatan*, and *cablaka* can be systematically measured and contextually embedded into

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the learning process. This offers teachers the opportunity to design learning experiences that not only focus on competency achievement but also nurture character and reinforce students' cultural identity. The application of Sternberg (2001), provides clear guidance for developing students' practical intelligence through thinking, acting, and reflecting. Therefore, this model is recommended for adoption across various levels of education, particularly in regions rich in local cultural heritage. The high validity and reliability of the instrument open up opportunities for replication and adaptation in other regions with different forms of local wisdom. As such, this instrument can contribute broadly to the development of similar tools in diverse educational contexts. Ultimately, the integration of local wisdom is expected to go beyond a mere complement to learning, becoming a foundational pillar for building culturally rooted, ethical, and sustainable entrepreneurship education.

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References

Abdulai, R. T., & Owusu-Ansah, A. (2014). Essential ingredients of a good research proposal for undergraduate and postgraduate students in the social sciences. *SAGE Open, 4*(3), 2158244014548178. https://doi.org/10.1177/2158244014548178

Abdullah, M. A. (2021). *Multidisiplin, interdisiplin, dan transdisiplin ilmu pengetahuan dan riset pada pendidikan tinggi masa depan*. IB Pustaka.

Abou-Assali, M. (2014). The nature of educational inquiry: Is one approach better? *International Review of Contemporary Learning Research, 3*(2), 71–76.

Adebisi, Y. A. (2022). Undergraduate students' involvement in research: Values, benefits, barriers and recommendations. *Annals of Medicine and Surgery, 81*, 104384. https://doi.org/10.1016/j.amsu.2022.104384

Afifi, R., & Yulisma, L. (2020). Implementasi model pembelajaran berbasis proyek dalam praktikum untuk meningkatkan intensi berwirausaha mahasiswa. *Quagga: Jurnal Pendidikan dan Biologi, 12*(1), 17–23. https://doi.org/10.25134/quagga.v12i1.2127

Afra, Y. A. (2024). *Gender-based batik education in the group of women craftsmen at the Papringan Banyumas Batik Center* [Thesis, Universitas Negeri Semarang]. Universitas Negeri Semarang.

Africano, F. (2023). The role of entrepreneurial mental innovation and local wisdom on organizational resilience. *International Journal of Entrepreneurship and Business Management, 2*(1), 19–33. https://doi.org/10.54099/ijebm.v2i1.526

Aletras, N. (2021). Applied research in the production of a genre film: Production design and realization of a school movie. *European Journal of Interdisciplinary Studies, 7*(2), 75–83.

Alkiş Küçükaydin, M., & Gökbulut, Y. (2020). The impact of a research methods course on teacher candidates' epistemological beliefs. *Australian Journal of Teacher Education, 45*(3), 18–33.

Alves, R. B., & Pinheiro, P. (2022). Factors influencing tacit knowledge sharing in research groups in higher education institutions. *Administrative Sciences, 12*(3), Article 89. https://doi.org/10.3390/admsci12030089

Anwar, L., Sa'dijah, C., Hidayah, I. R., & Abdullah, A. H. (2024). Integrating local wisdom and project-based learning to enhance critical thinking, collaboration, and creativity in mathematics education: A pilot study with eighth grade students in Malang. In *AIP Conference Proceedings*. (Details not provided)

Archibald, M. M. (2022). Interweaving arts-based, qualitative and mixed methods research: Showcasing integration and knowledge translation through material and narrative reflection. *International Review of Qualitative Research, 15*(2), 168–198. https://doi.org/10.1177/19408447221097063

P-ISSN: 2520-6338 | E-ISSN: 2617-4006

Arifin, Z. (2012). *Evaluasi pembelajaran*. PT Remaja Rosdakarya.

Aryani, R. (2019). Entrepreneurship learning model based on local wisdom for increasing student creative business. *Indonesian Journal of Contemporary Education, 1*(1), 24–31. https://doi.org/10.33122/ijoce.v1i1.7

Beddoes, K., & Borrego, M. (2014). Facilitating formation of shared mental models in interdisciplinary graduate student teams. *International Journal of Collaborative Engineering, 1*(4), 236–255.

Brewer, T. M. (1998). Arts education advocacy and research: To what end? *Arts Education Policy Review, 99*(5), 16–20. https://doi.org/10.1080/10632919809599476

Brownlee, J., Purdie, N., & Boulton-Lewis, G. (2001). Changing epistemological beliefs in pre-service teacher education students. *Teaching in Higher Education, 6*(2), 247–268. https://doi.org/10.1080/13562510120045221

Cahyaningsih, E., Suprijati, H., & Azy, L. (2025). Integrating local cultural wisdom in project-based learning to improve science education: A study of Kudus. *Education and Sociedad Journal, 2*(2), 66–77. https://doi.org/10.61987/edsojou.v2i2.701

Carpenter, A., & Wilson, R. (2022). A systematic review looking at the effect of entrepreneurship education on higher education student. *The International Journal of Management Education, 20*(2), 100541. https://doi.org/10.1016/j.ijme.2021.100541

Chen, G., & Chen, J. (2025). A study of postgraduate students' research training environment and innovation capabilities: The mediating role of academic interest and aspiration. *Innovations in Education and Teaching International, 62*(2), 674–687. https://doi.org/10.1080/14703297.2024.2325005

Cibangu, S. K. (2010). Paradigms, methodologies, and methods. *Library & Information Science Research, 32*(3), 177–178. https://doi.org/10.1016/j.lisr.2010.03.006

Colbert, F., & St-James, Y. (2014). Research in arts marketing: Evolution and future directions. *Psychology & Marketing, 31*(8), 566–575.

Committee on Facilitating Interdisciplinary Research. (2005). *Facilitating interdisciplinary research*. National Academies Press. https://doi.org/10.17226/11153

Condee, W. (2016). The interdisciplinary turn in the arts and humanities. *Issues in Interdisciplinary Studies, 34*, 12–29.

Corbacho, A. M., Minini, L., Pereyra, M., et al. (2021). Interdisciplinary higher education with a focus on academic motivation and teamwork diversity. *International Journal of Educational Research Open, 2*, 100062. https://doi.org/10.1016/j.ijedro.2021.100062

Davidavičienė, V. (2018). Research methodology: An introduction. In J. Marx Gómez & S. Mouselli (Eds.), *Modernizing the academic teaching and research environment: Methodologies and cases in business research* (pp. 1–23). Springer International Publishing. https://doi.org/10.1007/978-3-319-74173-4_1

de Klerk, W., Barnard, M., de Klerk, E., du Toit, R., & Daniel-Smit, J. (2023). The social science research process: A new model. *Open Journal of Social Sciences, 11*, 156–173.

Denzin, N. K., & Lincoln, Y. S. (1997). Entering the field of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Sage.

Diana, N., & Sukma, Y. (2021). The effectiveness of implementing project-based learning (PjBL) model in STEM education: A literature review. In *Journal of Physics: Conference Series*.

Djahwasi, H. R., & Saidon, Z. L. (2020). Artistic research: Artistic as research vs artistic as method. *International Journal of Academic Research in Business and Social Sciences, 10*(11), 292–309.

Dodgson, J. E. (2021). Critical analysis: The often-missing step in conducting literature review research. *Journal of Human Lactation, 37*(1), 27–32.

P-ISSN: 2520-6338 | E-ISSN: 2617-4006

Doğantan-Dack, M. (2020). Why collaborate? Critical reflections on collaboration in artistic research in classical music performance. In M. Blain & H. J. Minors (Eds.), *Artistic research in performance through collaboration* (pp. 39–57). Springer International Publishing. https://doi.org/10.1007/978-3-030-38599-6_3

El-Abiad, Z., & El-Chaarani, H. (2023). *How to write your PhD thesis: The easy handbook. Journal of Contemporary Research in Business Administration and Economic Sciences (JCR-BAES)*.

European Commission. (2013). *Entrepreneurship education: A guide for educators*.

Farhaeni, M., & Martini, S. (2024). Bahasa dalam membentuk interaksi sosial dan identitas budaya. *Jurnal Ilmu Sosial dan Ilmu Politik, 4*(1), 54–60. http://dx.doi.org/10.30742/juispol.v4i1.3786

Febi Arifianto, P., Setiawan, B., & Masnuna, M. (2024). Strengthening culture and creative economy development in support of digital economy development. *International and Interdisciplinary Conference on Arts Creation and Studies, 9*(1), 10–19. https://doi.org/10.33153/iicacs.v9i1.224

Fitri, A., Nafis, M., & Indarti, L. (2020). Multidisciplinary, interdisciplinary, and transdisciplinary (MIT) learning approach and strategy based on Indonesian National Qualification Framework (KKNI) curriculum. *Ulumuna, 24*(1), 183–204. https://doi.org/10.20414/ujis.v24i1.375

Freedman, K. (2005). Art education: Epistemologies of art. *Studies in Art Education, 46*(2), 99–100. https://doi.org/10.1080/00393541.2005.11651783

Gamage, A. N. K. K. (2025). Research design, philosophy, and quantitative approaches in scientific research methodology. *Scholars Journal of Engineering and Technology, 13*(2), 91–103.

Gardiner, P. (2020). Learning to think together: Creativity, interdisciplinary collaboration and epistemic control. *Thinking Skills and Creativity, 38*, 100749. https://doi.org/10.1016/j.tsc.2020.100749

Ghozali, I. (2016). *Aplikasi analisis multivariete dengan program IBM SPSS 23* (Edisi 8). Badan Penerbit Universitas Diponegoro.

Gong, K. (2022). Open science: The science paradigm of the new era. *Cultures of Science, 5*(1), 3–9. https://doi.org/10.1177/20966083221091867

Griffiths, M. (2011). Research and the self. In M. Biggs & H. Karlsson (Eds.), *The Routledge companion to research in the arts*. Routledge.

Guo, P., Saab, N., Post, L. S., & Admiraal, W. (2020). A review of project-based learning in higher education: Student outcomes and measures. *International Journal of Educational Research, 102*, 101586. https://doi.org/10.1016/j.ijer.2020.101586

Harefa, D. (2024). Strengthening mathematics and natural sciences education based on the local wisdom of South Nias: Integration of traditional concepts in modern education. *HAGA: Jurnal Pengabdian Kepada Masyarakat, 3*(2), 63–79. https://doi.org/10.57094/haga.v3i2.2347

Hart-Baldridge, E. (2020). Faculty advisor perspectives of academic advising. *NACADA Journal, 40*(1), 10–22. https://doi.org/10.12930/NACADA-18-25

Haskell, C. D. (2017). Institutional research as a bridge. *Higher Education Evaluation and Development, 11*(1), 2–11. https://doi.org/10.1108/HEED-08-2017-001

Howells, J. (1996). Tacit knowledge. *Technology Analysis & Strategic Management, 8*(2), 91–106.

Ibáñez, A. M. (2018). Visual research methodologies in the field of art education: Conceptual analysis and specific theoretical framework of reference. *Journal of Teacher Education and Educators, 7*(1), 75–93.

Irawan, M. F., Zulhijrah, Z., & Prastowo, A. (2023). Perencanaan pembelajaran ilmu pengetahuan alam berbasis project based learning pada Kurikulum Merdeka di sekolah dasar. *PIONIR: Jurnal Pendidikan, 12*(3), 38–46. http://dx.doi.org/10.22373/pjp.v12i3.20716

P-ISSN: 2520-6338 | E-ISSN: 2617-4006

Jardim, J., Bártolo, A., & Pinho, A. (2021). Towards a global entrepreneurial culture: A systematic review of the effectiveness of entrepreneurship education programs. *Education Sciences, 11*(8), Article 398. https://doi.org/10.3390/educsci11080398

Jatmika, B. J., & Amalia, K. (2024). Epistemologi pendidikan: Elaborasi pengetahuan untuk mencapai keautentisitasan kecerdasan manusia. *NUSRA: Jurnal Penelitian dan Ilmu Pendidikan, 5*(2), 561–573.

Jennings, W. G. (2021). Presidential address: Widening the net of education, research and scholarship, and service and community engagement in criminology and criminal justice. *American Journal of Criminal Justice, 46*(4), 577–585. https://doi.org/10.1007/s12103-021-09628-7

Kamlongera, M. I. (2021). "So what's arts got to do with it?" An autoethnography of navigating researcher positionality while co-creating knowledge. *Qualitative Research, 23*(3), 651–667. https://doi.org/10.1177/14687941211045611

Klaassen, R. G. (2018). Interdisciplinary education: A case study. *European Journal of Engineering Education, 43*(6), 842–859. https://doi.org/10.1080/03043797.2018.1442417

Kluger, M. O., & Bartzke, G. (2020). A practical guideline how to tackle interdisciplinarity—A synthesis from a post-graduate group project. *Humanities and Social Sciences Communications, 7*(1), 47. https://doi.org/10.1057/s41599-020-00540-9

Kraehe, A. M., & Acuff, J. B. (2013). Theoretical considerations for art education research with and about "underserved populations". *Studies in Art Education, 54*(4), 294–309. https://doi.org/10.1080/00393541.2013.11518904

Livingston, S. A., Carlson, J., & Bridgeman, B. (2018). *Test reliability—Basic concepts* (Research Memorandum No. RM-18-01). Educational Testing Service.

Luqmi, F. Z., Abas, E., Istiana, I., & Karmila, K. (2025). Integrating local wisdom and modern technology to address Society 5.0 era challenges in culture. *Jurnal Impresi Indonesia, 4*(1), 1052–1061. https://doi.org/10.58344/jii.v4i1.6226

Magara, E., Copriady, J., & Linda, R. (2021). Validity of assessment instruments for students' creative thinking ability on hydrocarbon material. *Al-Ishlah: Jurnal Pendidikan, 13*(1), 49–60. https://doi.org/10.35445/alishlah.v13i1.264

Mäkinen, E. I., Evans, E. D., & McFarland, D. A. (2020). The patterning of collaborative behavior and knowledge culminations in interdisciplinary research centers. *Minerva, 58*(1), 71–95. https://doi.org/10.1007/s11024-019-09381-6

Marshall, J. (2014). Transdisciplinarity and art integration: Toward a new understanding of art-based learning across the curriculum. *Studies in Art Education, 55*(2), 104–127. https://doi.org/10.1080/00393541.2014.11518922

Mason, R. (2008). Problems of interdisciplinarity: Evidence-based and/or artist-led research? *International Journal of Art & Design Education, 27*(3), 279–292. https://doi.org/10.1111/j.1476-8070.2008.00586.x

McHoul, A., & Luke, A. (1989). The discourses and politics of "education" and "epistemology". *Social Epistemology, 3*(1), 3–17. https://doi.org/10.1080/02691728908578510

Mislay, M. A., & Anania, A. M. (2025). Determinants of postgraduate students' awareness and utilization of educational research paradigms and approaches in a public university in Tanzania. *Social Sciences & Humanities Open, 11*, 101197. https://doi.org/10.1016/j.ssaho.2024.101197

Morris, J. E., & Paris, L. F. (2022). Rethinking arts-based research methods in education: Enhanced participant engagement processes to increase research credibility and knowledge translation. *International Journal of Research & Method in Education, 45*(1), 99–112. https://doi.org/10.1080/1743727X.2021.1926971

Morss, R. E., Lazrus, H., & Demuth, J. L. (2021). The "inter" within interdisciplinary research: Strategies for building integration across fields. *Risk Analysis, 41*(7), 1152–1161. https://doi.org/10.1111/risa.13246

P-ISSN: 2520-6338 | E-ISSN: 2617-4006

Muchlas, Z. (2021). Pengaruh pembelajaran kewirausahaan terhadap motivasi kewirausahaan. *Relasi: Jurnal Ekonomi, 17*(1), 1–32. https://doi.org/10.31967/relasi.v17i1.409

Mulej, L., & Sirca, N. T. (2010). Culture and wisdom: Tacit knowledge as a way of learning in higher education. *International Journal of Innovation and Learning, 7*(3), 345–358. https://doi.org/10.1504/IJIL.2010.031951

Munir, S., Merlinda, S., Soesilo, Y. H., & Windrayadi, Y. D. P. (2021). Experience-based learning models in entrepreneurship courses: An innovation to promote entrepreneurship based on local wisdom. *KnE Social Sciences, 5*(8), 341–350. https://doi.org/10.18502/kss.v5i8.9386

Mwasalwiba, E. S. (2012). Entrepreneurship education: A review of its objectives, teaching methods, and impact indicators. *IEEE Engineering Management Review, 40*(2), 72–94. https://doi.org/10.1109/EMR.2012.6210519

Ningrum, E. (2016). [Conference paper]. In *Proceedings of the 1st UPI International Conference on Sociology Education*. https://doi.org/10.2991/icse-15.2016.88

Nurpratiwiningsih, L., Rusdarti, R., Widodo, J., & Sanjoto, T. B. (2023). Local wisdom as learning innovation in elementary schools. In *International Conference on Science, Education, and Technology, Indonesia*.

Oni, O., Agbobli, E. K., & Iwu, C. G. (2019). Entrepreneurial orientation and performance of small business in Vryburg region, North West province, South Africa. *Journal of Reviews on Global Economics, 8*, 63–71.

Overton, W. F. (2012). Evolving scientific paradigms: Retrospective and prospective. In L. L'Abate (Ed.), *Paradigms in theory construction* (pp. 31–66). Springer. https://doi.org/10.1007/978-1-4614-0914-4_3

Paltridge, B., & Starfield, S. (2007). *Thesis and dissertation writing in a second language: A handbook for supervisors* (1st ed.). Routledge.

Parsons, M. J. (1998). Integrated curriculum and our paradigm of cognition in the arts. *Studies in Art Education, 39*(2), 103–116. https://doi.org/10.2307/1320463

Pepperell, R. (2015). Artworks as dichotomous objects: Implications for the scientific study of aesthetic experience. *Frontiers in Human Neuroscience, 9*, Article 1–17.

Perignat, E., & Katz-Buonincontro, J. (2019). STEAM in practice and research: An integrative literature review. *Thinking Skills and Creativity, 31*, 31–43. https://doi.org/10.1016/j.tsc.2018.10.002

Pervin, N., & Mokhtar, M. (2022). The interpretivist research paradigm: A subjective notion of a social context. *International Journal of Academic Research in Progressive Education and Development, 11*(2), 419–428.

Peshkin, A. (1993). The goodness of qualitative research. *Educational Researcher, 22*(2), 23–29. https://doi.org/10.3102/0013189X022002023

Prior, R. W. (2018). *Using art as research in learning and teaching: Multidisciplinary approaches across the arts*. Intellect.

Prior, R. W. (2019). Artistic significance, creativity, and innovation using art as research. In M. A. Peters & R. Heraud (Eds.), *Encyclopedia of educational innovation* (pp. 1–6). Springer. https://doi.org/10.1007/978-981-13-2262-4_64-1

Priyadi, S., Karton, K., & Widayati, N. (2015). Guru mendongeng kearifan lokal Banyumasan. *Khazanah Pendidikan, 9*(1).

Puspitasari, F. F., & Priatmoko, S. (2022). Development of integrated entrepreneurship education based on local wisdom through Jagong Maton. *Nidhomul Haq: Jurnal Manajemen Pendidikan Islam, 6*(3), 690–703. https://doi.org/10.31538/ndh.v6i3.1757

Putri, M. F. J. L., Septipane, D., Sulistiawati, D., & Mumung, K. E. (2023). Peranan masyarakat dalam mengembangkan nilai kearifan lokal di suku Baduy. *Jurnal Kewarganegaraan, 7*(2), 1811–1816. https://doi.org/10.31316/jk.v7i2.5466

Rafiu, S. (2021). *Bonokeling dulu kini dan nanti* (Mintarti, Ed.). SIP Publishing.

P-ISSN: 2520-6338 | E-ISSN: 2617-4006

Rasdia, R., & Hernah, H. (2024). Strategy for instilling local wisdom values in the formation of students' morals. *Jurnal Pendidikan Agama Islam Indonesia (JPAII), 5*(3), 100–111. https://doi.org/10.37251/jpaii.v5i3.1138

Retnowati, R., Istiadi, Y., & Istiana, R. (2019). Effectiveness of project learning model based on local wisdom in improving creativity to develop environment learning media. In *Proceedings of the 3rd Asian Education Symposium (AES 2018)*.

Rofiqoh, I., & Zulhawati. (2020). *Metode penelitian kuantitatif, kualitatif, dan campuran*. Pustaka Pelajar.

Sari, N. (2020). Pendidikan berbasis kearifan lokal untuk membentuk karakter siswa sekolah dasar. *Jurnal Penelitian, Pendidikan dan Pengajaran: JPPP, 1*(1), 27–37. https://doi.org/10.30596/jppp.v1i1.4452

Siswadhi, F., Carolina, C., & Marselina, S. (2020). Optimalisasi peran pemuda dalam pembangunan ekonomi kreatif berbasis sektor pariwisata. *Jurnal Ekonomi Sakti (JES), 9*(1), 170–187.

Sternberg, R. J. (2001). Why schools should teach for wisdom: The balance theory of wisdom in educational settings. *Educational Psychologist, 36*(4), 227–245. http://dx.doi.org/10.1207/S15326985EP3604_2

Susilorini, R. M. R. (2022). *Kearifan lokal Jawa Tengah: Tak lekang oleh waktu*. SCU Knowledge Media.

Suttrisno, S., & Rofi'ah, F. Z. (2023). Integrasi nilai-nilai kearifan lokal guna mengoptimalkan Projek Penguatan Pelajar Pancasila Madrasah Ibtidaiyah di Bojonegoro. *PIONIR: Jurnal Pendidikan, 12*(1), 53–76.

Tilaar, H. (2015). *Pedagogik teoretis untuk Indonesia*. Penerbit Buku Kompas.

Uge, S., Neolaka, A., & Yasin, M. (2019). Development of social studies learning model based on local wisdom in improving students' knowledge and social attitude. *International Journal of Instruction, 12*(3), 375–388. https://doi.org/10.29333/iji.2019.12323a

Watthanakuljaroen, T. (2023). Development of a model for knowledge management of local wisdom via virtual learning community for instructional management. *International Journal of Information and Education Technology, 13*(11), 1720–1728. https://doi.org/10.18178/ijiet.2023.13.11.1981

Wray, K. B. (2010). Kuhn and the discovery of paradigms. *Philosophy of the Social Sciences, 41*(3), 380–397. https://doi.org/10.1177/0048393109359778

Yetti, E. (2024). Pedagogical innovation and curricular adaptation in enhancing digital literacy: A local wisdom approach for sustainable development in Indonesia context. *Journal of Open Innovation: Technology, Market, and Complexity, 10*(1), 100233. https://doi.org/10.1016/j.joitmc.2024.100233