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Intelligent Evaluation Model for Determining Multiple Intelligence Profiles of Junior High Students Through Digital Likert Scale Architecture

Dr. Nuwan Chamara Perera
Department of Applied Sciences and Technology, Sri Lankan Institute of Technological Studies, Colombo, Sri Lanka

Ms. Tharushi Madushika Fernando
Faculty of Technology and Applied Research, National Centre for Scientific Development, Kandy, Sri Lanka

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Abstract: The identification of students' multiple intelligence profiles has become an important component in developing personalized learning strategies, particularly at the junior high school level where students demonstrate diverse cognitive abilities, learning preferences, and academic potentials. Conventional evaluation approaches frequently emphasize limited academic indicators and provide insufficient representation of broader intelligence dimensions. This research proposes an Intelligent Evaluation Model for Determining Multiple Intelligence Profiles of Junior High Students Through Digital Likert Scale Architecture. The study conceptualizes a technology-supported assessment framework that integrates multiple intelligence indicators, digital questionnaire mechanisms, and structured evaluation processes using a Likert scale approach. The proposed model focuses on improving the accuracy, efficiency, and accessibility of intelligence profile identification through web-based assessment architecture.

The research adopts a conceptual development approach by analyzing previous studies related to multiple intelligence-based learning materials, digital learning systems, educational assessment models, and technology-supported evaluation methods. The model consists of several functional components, including intelligence indicator formulation, digital data acquisition, response weighting mechanisms, profile classification, and interpretation of evaluation outcomes. The framework is designed to support teachers in understanding student characteristics and enabling more adaptive instructional planning. Previous research regarding contextual learning approaches and guided discovery methods demonstrates the importance of aligning educational strategies with students' cognitive and emotional characteristics (Agustyarini and Jailani, 2015). Similarly, studies on multiple intelligence-based educational resources highlight the potential of intelligence-oriented approaches for improving student engagement and learning effectiveness (Lestari and Nisa, 2018).

The proposed architecture contributes to educational technology research by providing a systematic approach for transforming qualitative intelligence assessment into a measurable digital evaluation process. The model also provides opportunities for data-driven educational decision-making while acknowledging limitations related to indicator selection, respondent subjectivity, and contextual differences among learners. This research provides a foundation for developing intelligent educational assessment systems that promote personalized learning environments in junior high schools.

Keywords: Multiple Intelligence, Intelligent Evaluation Model, Digital Assessment, Likert Scale Architecture, Educational Technology, Student Profiling, Personalized Learning, Web-Based System.

1. Introduction:

1.1 Problem Statement

Educational systems increasingly recognize that student achievement cannot be measured exclusively through traditional academic scores. Students possess different cognitive strengths, learning approaches, and intellectual characteristics that influence how they understand information, solve problems, and interact with learning environments. The concept of multiple intelligence emphasizes that intelligence consists of various dimensions rather than a single measurable capability. Therefore, educational institutions require evaluation mechanisms capable of identifying diverse intelligence patterns to support appropriate teaching strategies.

At the junior high school level, identifying students' intelligence profiles becomes particularly significant because learners experience major cognitive and developmental transitions. During this stage, students begin demonstrating specific interests, abilities, and learning tendencies that can influence future academic and professional pathways. However, many schools still rely on conventional assessment practices that mainly evaluate linguistic and logical-mathematical achievement while providing limited recognition of other intelligence domains.

Previous educational research has demonstrated the importance of designing learning approaches that consider students' different capabilities. The development of contextual mathematical learning materials combined with guided discovery approaches showed that educational methods adapted to student characteristics can improve cognitive and affective outcomes (Agustyarini and Jailani, 2015). This indicates that understanding learner diversity is not only beneficial for assessment purposes but also essential for designing effective instructional models.

Existing evaluation practices also face technological limitations. Manual questionnaires require significant time for data collection, processing, and interpretation. Teachers often encounter difficulties when analyzing large numbers of student responses and converting assessment results into meaningful learning recommendations. Digital assessment architecture provides an opportunity to overcome these limitations by enabling automated data collection, structured processing, and systematic interpretation.

The integration of digital Likert scale evaluation with multiple intelligence assessment offers a potential solution for creating efficient and accessible student profiling systems. Through web-based architecture, students can complete assessment instruments electronically, while teachers can obtain organized intelligence profile information for educational planning. Such an approach supports the transformation of traditional assessment into a more intelligent and adaptive evaluation environment.

1.2 Research Relevance

The relevance of this research is associated with the increasing demand for personalized education systems. Modern educational environments require approaches that recognize individual differences rather than applying identical instructional strategies to all learners. A digital multiple intelligence evaluation model can assist educators in understanding student characteristics and developing learning experiences that correspond with individual strengths.

Research on multiple intelligence-based student worksheets indicates that educational materials designed according to intelligence variations can support meaningful learning experiences. Lestari and Nisa (2018) demonstrated the application of multiple intelligence principles in developing learning resources, suggesting that intelligence-oriented educational design can provide a broader perspective of student capabilities.

Furthermore, digital learning development research shows that technology-supported educational systems can improve accessibility and interaction. The development of interactive learning modules through digital platforms illustrates how technology can support flexible and learner-centered educational processes (Rodiawati and Komarudin, 2018). These findings provide theoretical justification for developing digital assessment systems that extend beyond content delivery toward intelligent learner analysis.

The proposed evaluation model is also relevant to current educational management practices because schools increasingly require data-driven approaches for decision-making. Student intelligence profiles generated through digital assessment can support classroom management, curriculum adaptation, and individual learning support programs.

1.3 Research Objectives

This research aims to develop a conceptual intelligent evaluation model for determining multiple intelligence profiles of junior high school students through digital Likert scale architecture. Specifically, the objectives are:

1. To design a framework for digital identification of multiple intelligence profiles using structured Likert scale evaluation.
2. To develop an assessment architecture that integrates intelligence indicators, digital data

collection, and profile interpretation mechanisms.

3. To analyze the potential contribution of intelligent evaluation systems toward personalized learning implementation.

4. To identify theoretical and practical implications of applying digital intelligence assessment in junior high school environments.

1.4 Scope and Significance

This research focuses on the design of an evaluation architecture rather than empirical implementation across a specific educational institution. The proposed model emphasizes the relationship between multiple intelligence theory, digital assessment mechanisms, and educational decision-support processes.

The significance of this research lies in providing an alternative assessment framework capable of representing student diversity more comprehensively. The model may support teachers, curriculum developers, and educational institutions in implementing learner-centered approaches. By combining intelligence assessment principles with digital technology, the proposed architecture contributes to the development of more adaptive educational systems.

2. LITERATURE REVIEW

2.1 Multiple Intelligence-Oriented Educational Approaches

Multiple intelligence-based education emphasizes that students possess different forms of intellectual ability that influence their learning behavior and achievement patterns. Educational materials and assessment strategies developed from this perspective attempt to recognize abilities beyond conventional academic measurement.

Lestari and Nisa (2018) investigated the development of student worksheets based on multiple intelligence concepts. Their study demonstrated that learning resources incorporating intelligence diversity can provide opportunities for students to engage with materials according to their cognitive strengths. This perspective supports the development of evaluation systems that identify individual intelligence characteristics before instructional intervention is designed.

Similarly, Mufidah and Mukhlisin (2020) examined the formation of linguistic intelligence and Quran reading skills among students. Their findings indicate that specific intelligence dimensions can be developed through targeted educational activities. This highlights the importance of recognizing particular intelligence patterns because different abilities may require different educational approaches.

However, existing multiple intelligence-based studies generally focus on instructional material development rather than digital intelligence profile determination. A gap exists in creating systematic evaluation mechanisms capable of measuring intelligence characteristics efficiently across large student populations.

2.2 Digital Assessment and Learning Technology Development

The advancement of educational technology has transformed assessment processes from traditional paper-based methods into digital systems. Digital assessment provides advantages including faster data processing, centralized information management, and improved accessibility.

Rodiawati and Komarudin (2018) explored the development of interactive e-learning modules based on Learning Content Development System. Their research demonstrates that digital platforms can enhance educational interaction and provide structured learning experiences. The same technological principles can be applied to digital assessment environments where student responses are collected and analyzed systematically.

The utilization of multimedia and digital learning resources has also been explored in educational contexts. Widiyaningsih et al. (2021) examined the development and utilization of mathematics learning multimedia using Powtoon during the COVID-19 period. Their findings demonstrate that digital technologies can support educational continuity and innovation. These developments provide a foundation for integrating digital architectures into student evaluation processes.

Nevertheless, digital learning systems frequently emphasize content presentation rather than intelligent analysis of learner characteristics. Therefore, an intelligent evaluation architecture that converts digital responses into meaningful intelligence profiles represents an important research direction.

2.3 Educational Evaluation, Learning Characteristics, and Student Profiling

Educational evaluation functions not only as a mechanism for measuring achievement but also as a tool for understanding learning characteristics. Effective evaluation systems should provide information that supports instructional improvement and learner development. Traditional assessment models frequently emphasize final outcomes, whereas modern approaches increasingly consider learner processes, preferences, and cognitive characteristics.

Research examining student understanding and

learning outcomes indicates that multiple factors influence educational performance. Hajering (2021) analyzed factors affecting students' understanding levels in auditing courses and emphasized that comprehension is influenced by learning conditions, instructional processes, and individual characteristics. Although the research context differs from junior high education, the findings support the argument that student performance cannot be interpreted through a single measurement dimension.

Similarly, Putri, Putra, and Bahrum (2022) analyzed student satisfaction levels during online learning and demonstrated the importance of evaluating student experiences within technology-mediated environments. Digital learning environments require assessment approaches that consider not only academic achievement but also learner interaction, engagement, and response patterns.

The development of a digital Likert scale architecture for intelligence profiling aligns with this broader perspective of educational evaluation. Instead of measuring only achievement indicators, the proposed model focuses on identifying underlying intelligence tendencies that influence learning behavior. Such information can assist educators in selecting appropriate learning strategies and providing targeted academic support.

2.4 Contextual Learning and Intelligence-Based Instruction

The relationship between learner characteristics and instructional design has been highlighted in several educational studies. Agustyarini and Jailani (2015) investigated contextual learning approaches combined with guided discovery methods to improve emotional intelligence and spiritual intelligence among accelerated junior high school students. Their research indicates that learning approaches designed according to student characteristics can influence broader developmental outcomes.

This perspective provides important theoretical support for the proposed intelligent evaluation model. A system that identifies intelligence profiles can become a preliminary stage for designing contextual and individualized learning experiences. When teachers understand students' dominant intelligence patterns, they can create activities that correspond with student abilities and encourage balanced development.

The proposed digital Likert scale architecture extends this concept by transforming intelligence identification into a structured computational process. While previous research has explored intelligence-oriented instructional strategies, the current model emphasizes the assessment infrastructure required before personalized instruction can be implemented.

2.5 Digital Learning Resources and Interactive Educational Systems

The emergence of digital educational resources has created opportunities for developing more flexible and responsive learning systems. Indriyani and Munajah (2022) developed digital student worksheets for elementary school learners and demonstrated the potential of digital materials to support structured learning activities. Digital resources provide advantages in terms of accessibility, adaptability, and student engagement.

Sari and Wulanda (2019) examined project-based student worksheets designed to improve creative thinking abilities. Their research highlights the importance of learning environments that encourage active participation and creativity. Intelligence profile identification can complement such approaches by helping educators understand which learning activities may stimulate particular student strengths.

Despite these developments, most digital educational systems remain focused on delivering learning content rather than generating analytical information about students. The research gap addressed by this study is the lack of an integrated digital framework capable of collecting student intelligence-related data, processing responses, and producing interpretable intelligence profiles.

2.6 Research Gap and Theoretical Positioning

Based on the reviewed literature, three major research gaps can be identified. First, existing multiple intelligence studies primarily concentrate on learning material development rather than automated intelligence profile determination. Second, digital education research commonly focuses on instructional delivery, while limited attention is given to intelligent assessment architecture. Third, many evaluation approaches measure academic outcomes but provide limited analysis of cognitive diversity among learners.

The proposed Intelligent Evaluation Model addresses these gaps by combining multiple intelligence indicators with digital Likert scale mechanisms. The model positions itself at the intersection of educational psychology, assessment technology, and digital learning system development.

The theoretical foundation of this research is based on the assumption that intelligence diversity requires systematic recognition before educational personalization can occur. The digital architecture provides a structured mechanism for translating subjective student responses into measurable

evaluation outcomes. Furthermore, previous findings regarding contextual learning approaches demonstrate that understanding learner characteristics is essential for improving educational effectiveness (Agustyarini and Jailani, 2015).

3. METHODOLOGY

3.1 Research Design

This research adopts a conceptual system development methodology aimed at designing an intelligent evaluation framework for determining multiple intelligence profiles among junior high school students. The methodology combines educational assessment principles, digital system architecture design, and structured evaluation modelling.

The research does not focus on experimental validation with a specific population but develops a theoretically grounded framework based on analysis of existing educational studies. The approach involves identifying assessment requirements, designing system components, establishing evaluation procedures, and defining mechanisms for interpreting intelligence profile outcomes.

The methodology consists of five major stages:

1. Identification of multiple intelligence assessment indicators.
2. Development of digital Likert scale questionnaire architecture.
3. Response processing and intelligence profile computation.
4. Profile classification and visualization mechanism.
5. Educational interpretation and implementation framework.

Each stage contributes to creating a comprehensive evaluation system capable of supporting teacher decision-making.

3.2 Proposed Intelligent Evaluation Architecture

The proposed architecture consists of four integrated layers:

3.2.1 Input Layer: Intelligence Indicator Formulation

The input layer represents the foundation of the assessment system. At this stage, intelligence dimensions are converted into measurable indicators. Each intelligence category is represented through behavioral statements that can be evaluated by students using a Likert scale.

For example, linguistic intelligence indicators may include preferences for reading, writing, communication, and verbal expression. Logical-mathematical intelligence indicators may involve problem-solving preferences, analytical thinking, and numerical reasoning abilities.

The indicator design process requires careful consideration because inappropriate indicators may reduce assessment accuracy. Indicators should represent observable learning behaviors rather than abstract intelligence assumptions.

Multiple intelligence-based educational research supports the importance of recognizing different ability dimensions in learning environments. The development of multiple intelligence-oriented worksheets demonstrates that instructional design can benefit from identifying students' diverse capabilities (Lestari and Nisa, 2018).

3.2.2 Processing Layer: Digital Likert Scale Mechanism

The second layer manages student response collection and computational processing. The Likert scale provides a structured method for converting individual perceptions into numerical values.

A typical five-point scale may include:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Each response receives a numerical score, which is processed according to predefined intelligence indicators.

The digital implementation provides several advantages compared with manual assessment. Student responses can be stored automatically, calculations can be performed consistently, and results can be generated immediately after questionnaire completion.

The use of digital educational systems has demonstrated potential for improving accessibility and efficiency. Interactive digital learning development research indicates that technology-based platforms can support structured educational processes (Rodiawati and Komarudin, 2018).

3.2.3 Analysis Layer: Intelligence Profile Calculation

The analysis layer transforms questionnaire responses into intelligence profile scores. Each intelligence category receives a calculated value based on accumulated indicator responses.

A simplified calculation model can be represented as:

Intelligence Score = Total Indicator Response Score / Maximum Possible Score × 100

The resulting percentage represents the strength level

of each intelligence dimension.

For example, a student may demonstrate:

- High linguistic intelligence score
- Moderate logical intelligence score
- Strong interpersonal intelligence score

The system does not classify students as superior or inferior but identifies dominant and supporting intelligence characteristics. This distinction is important because multiple intelligence assessment focuses on diversity rather than ranking.

3.2.4 Output Layer: Profile Visualization and Educational Recommendation

The final layer presents assessment outcomes in a teacher-friendly format. The system generates intelligence profiles using tables, charts, or digital dashboards.

The output may include:

- Dominant intelligence categories
- Supporting intelligence areas
- Suggested learning approaches
- Student development recommendations

Such visualization enables teachers to interpret assessment results without requiring complex statistical knowledge.

Digital assessment systems that provide structured information can support educational decision-making. Research on digital learning environments indicates that technology can enhance management and accessibility of educational information (Indriyani and Munajah, 2022).

3.3 Development of Digital Likert Scale Assessment Framework

The proposed digital Likert scale framework is designed as an integrated assessment mechanism that combines educational measurement principles with web-based system functionality. The framework aims to overcome limitations of conventional intelligence identification methods by providing a structured, scalable, and accessible evaluation process.

The development process begins with the formulation of intelligence indicators based on observable student behaviors. Rather than evaluating intelligence through direct assumptions, the framework transforms abstract intelligence concepts into measurable statements related to learning activities, preferences, problem-solving behaviors, communication patterns, and creative tendencies.

For junior high school students, the assessment statements are designed using age-appropriate language to ensure comprehension and reliable responses. Each item represents a specific intelligence dimension and contributes to the overall intelligence profile calculation.

The digital assessment framework consists of three operational components:

3.3.1 Questionnaire Management Component

This component manages the creation, distribution, and administration of intelligence assessment instruments. Teachers or administrators can input intelligence indicators, organize questionnaire categories, and distribute digital assessment links to students.

The component provides flexibility because assessment items can be adjusted according to educational context. For example, schools emphasizing science learning may include additional analytical indicators, while schools focusing on language development may emphasize communication-related indicators.

The questionnaire management component reflects the principles of digital educational system development, where technology enables flexible modification and efficient administration. Previous research on digital learning resources demonstrates that technology-supported educational tools can improve accessibility and organization of learning activities (Widiyaningsih et al., 2021).

3.3.2 Student Response Collection Component

The response collection component functions as the primary data acquisition mechanism. Students access the digital questionnaire through a web-based interface and provide responses based on their perceptions and experiences.

The system records:

- Student identification information
- Questionnaire completion status
- Response values
- Time of completion
- Intelligence category scores

Data collection through digital platforms reduces administrative workload and minimizes calculation errors commonly found in manual assessment processes.

However, student self-assessment introduces potential limitations. Responses may be influenced by personal perception, social desirability, or insufficient understanding of statements. Therefore, the system should be complemented with teacher observations and academic performance analysis to improve reliability.

3.3.3 Intelligent Analysis Component

The intelligent analysis component represents the core of the proposed model. This component processes collected responses and generates intelligence profiles automatically.

The analytical mechanism includes:

1. Response normalization
2. Intelligence category scoring
3. Comparative analysis among intelligence dimensions
4. Profile classification
5. Recommendation generation

Normalization ensures that different intelligence categories can be compared using equivalent measurement scales.

For example, if linguistic intelligence receives a score of 82%, logical intelligence receives 74%, and interpersonal intelligence receives 88%, the system identifies interpersonal intelligence as the dominant profile while recognizing linguistic intelligence as a supporting capability.

The analytical process follows the principle that students possess multiple strengths rather than a single intelligence classification. This approach aligns with previous educational research emphasizing diverse student capabilities and intelligence-oriented learning strategies (Mufidah and Mukhlisin, 2020).

3.4 Proposed System Workflow

The workflow of the intelligent evaluation model can be described through sequential stages:

Stage 1: Student Registration and Authentication

Students access the digital platform through secure authentication. The system records basic information required for assessment management while maintaining student data confidentiality.

Stage 2: Digital Questionnaire Completion

Students complete intelligence-related statements using the Likert scale interface. Each statement represents behavioral characteristics associated with specific intelligence domains.

Stage 3: Automated Data Processing

The system calculates scores automatically based on student responses. This eliminates manual scoring procedures and increases processing efficiency.

Stage 4: Intelligence Profile Generation

The system generates a comprehensive intelligence profile showing dominant and developing intelligence dimensions.

Stage 5: Educational Recommendation Output

Teachers receive interpretation reports that can support instructional planning, student guidance, and learning activity customization.

The workflow demonstrates how digital architecture can transform intelligence assessment from a static questionnaire into an interactive educational decision-support system.

3.5 Conceptual Framework of the Intelligent Evaluation Model

The proposed model consists of four major elements:

Input → Processing → Analysis → Output

Input Component

The input component includes:

- Multiple intelligence indicators
- Digital questionnaire items
- Student responses
- Learning behavior information

The quality of the input determines the reliability of final assessment outcomes. Poorly designed indicators may produce inaccurate profiles; therefore, indicator validation is a critical stage.

Processing Component

The processing component applies Likert scale transformation methods. Student responses are converted into numerical representations that allow systematic calculation.

The digital approach improves efficiency because large numbers of student responses can be processed simultaneously.

Analysis Component

The analysis component evaluates patterns among intelligence dimensions. Instead of producing a single score, the system creates a multidimensional profile representing student characteristics.

This approach differs from conventional achievement measurement because it emphasizes learning potential rather than only academic results.

Output Component

The output component provides meaningful information for educational stakeholders. Teachers can utilize the results to design differentiated learning activities, while students can gain awareness of their personal learning strengths.

3.6 Example Implementation Scenario

A hypothetical junior high school implements the proposed system for 300 students. Each student completes a digital questionnaire containing multiple

intelligence indicators.

After data collection, the system generates individual profiles.

Student A demonstrates:

- Linguistic intelligence: 85%
- Logical-mathematical intelligence: 72%
- Spatial intelligence: 80%
- Interpersonal intelligence: 90%

The system identifies interpersonal and linguistic abilities as dominant characteristics. Based on this profile, teachers may design collaborative learning activities, presentations, group discussions, and communication-based assignments.

Student B demonstrates:

- Logical-mathematical intelligence: 91%
- Spatial intelligence: 86%
- Linguistic intelligence: 68%

The teacher may provide more analytical tasks, problem-solving activities, and visualization-based learning materials.

This example demonstrates how intelligence profiling can support personalized educational planning rather than replacing teacher judgment.

3.7 Methodological Advantages and Limitations

The proposed methodology provides several advantages.

First, the digital architecture improves efficiency by reducing manual assessment procedures. Teachers can collect and analyze large amounts of student data within shorter periods.

Second, the multidimensional approach provides broader understanding of student capabilities. Unlike traditional academic evaluation, the model recognizes diverse intelligence patterns.

Third, the framework supports personalized learning implementation by providing information that can guide instructional decisions.

However, several limitations must be considered.

The first limitation relates to self-report assessment. Students may provide responses influenced by personal interpretation rather than actual ability.

The second limitation involves indicator development. Intelligence dimensions are complex concepts, and simplified questionnaire items may not fully represent cognitive abilities.

The third limitation concerns technological accessibility. Schools with limited digital infrastructure may face challenges implementing web-based assessment systems.

Therefore, future development should include empirical validation, integration with learning analytics, and combination with teacher observation methods.

4. RESULTS

The conceptual analysis of the proposed Intelligent Evaluation Model demonstrates that digital Likert scale architecture can provide a structured mechanism for identifying multiple intelligence profiles among junior high school students. The primary finding indicates that integrating intelligence indicators with automated digital assessment creates a more comprehensive evaluation approach compared with conventional academic measurement systems.

The proposed model successfully establishes a relationship between student characteristics, digital assessment processes, and educational decision-making. The architecture enables systematic collection of intelligence-related information and converts qualitative learning tendencies into measurable profile indicators.

The findings also indicate that digital assessment improves operational efficiency. Teachers can reduce administrative workload because questionnaire distribution, scoring, and reporting processes are automated. This advantage is particularly significant in educational environments involving large numbers of students.

Furthermore, the model demonstrates potential for supporting personalized learning strategies. Intelligence profile information allows educators to design instructional activities aligned with student strengths. This finding corresponds with previous research showing that contextual learning approaches and guided discovery strategies can improve educational outcomes when aligned with learner characteristics (Agustyarini and Jailani, 2015).

The analysis also reveals that digital intelligence profiling should not function as a replacement for comprehensive educational evaluation. Instead, it should operate as a supporting instrument that provides additional information about student learning tendencies.

The proposed model contributes a framework for integrating educational psychology concepts with digital assessment technology. It expands previous research that focused mainly on multiple intelligence-based learning materials by introducing an evaluation-oriented digital architecture.

5. DISCUSSION

The development of the Intelligent Evaluation Model

for Determining Multiple Intelligence Profiles of Junior High Students Through Digital Likert Scale Architecture provides important theoretical and practical implications for educational assessment. The findings indicate that digital intelligence profiling can become an effective supporting mechanism for understanding student diversity and improving personalized learning strategies.

From a theoretical perspective, the proposed model strengthens the connection between multiple intelligence concepts and educational technology. Previous studies have demonstrated the importance of recognizing diverse student abilities through intelligence-oriented learning approaches. Lestari and Nisa (2018) showed that learning resources based on multiple intelligence principles can support broader recognition of student capabilities. However, their work primarily emphasized instructional material development, whereas the current model extends this perspective by focusing on systematic intelligence identification through digital evaluation.

The proposed architecture also supports the argument that educational assessment should move beyond conventional achievement measurement. Traditional evaluation systems generally emphasize academic outcomes, while the intelligent evaluation model focuses on identifying cognitive tendencies, learning preferences, and potential strengths. This approach provides educators with additional information for designing learning activities that accommodate individual differences.

The relationship between intelligence assessment and instructional adaptation is further supported by research on contextual learning approaches. Agustyarini and Jailani (2015) demonstrated that learning methods adapted to student characteristics can influence emotional and cognitive development outcomes. The proposed model complements this perspective by providing an initial diagnostic mechanism that helps educators understand learner characteristics before implementing adaptive teaching strategies.

From a practical perspective, the digital Likert scale architecture offers efficiency advantages for schools. Manual assessment procedures often require considerable time for questionnaire distribution, response collection, scoring, and interpretation. The proposed web-based system automates these processes and allows teachers to access student profiles more efficiently.

However, the implementation of the model requires careful consideration of several challenges. The first challenge involves assessment validity. Multiple intelligence characteristics represent complex psychological constructs that cannot be fully captured through limited questionnaire items. Therefore, indicator development must be conducted carefully to ensure that each item accurately represents the intended intelligence dimension.

The second challenge concerns student response reliability. Because the assessment relies partly on self-reported information, students may provide responses influenced by personal expectations, peer influence, or misunderstanding of questions. Combining digital questionnaire results with teacher observation and academic evidence may improve assessment accuracy.

The third challenge relates to technological readiness. Schools with limited internet access, insufficient digital devices, or inadequate technical support may experience difficulties adopting web-based assessment systems. Therefore, implementation strategies should consider infrastructure availability and teacher digital competency.

The proposed model also creates several opportunities for future educational innovation. Integration with artificial intelligence techniques, learning analytics, and adaptive recommendation systems may improve the capability of the architecture. For example, future versions could analyze changes in intelligence profiles over time and provide dynamic learning recommendations based on student development patterns.

Comparison with previous digital learning studies further emphasizes this opportunity. Research on interactive digital learning modules indicates that technology can improve educational accessibility and engagement (Rodiawati and Komarudin, 2018). Similarly, research on digital student worksheets demonstrates that technology-supported educational resources can enhance learning organization and student interaction (Indriyani and Munajah, 2022). The proposed evaluation model expands these developments by applying digital technology to student intelligence analysis rather than only learning content delivery.

The model also aligns with findings regarding creative and active learning environments. Sari and Wulanda (2019) emphasized the importance of learning approaches that encourage creativity and student involvement. Intelligence profiling can support such approaches by helping teachers identify which activities may effectively stimulate different student abilities.

Nevertheless, the model should be interpreted as a decision-support framework rather than a definitive classification system. Intelligence profiles should not

limit student opportunities or create fixed labels. Instead, assessment results should encourage educators to provide diverse learning experiences that allow students to develop multiple capabilities.

6. CONCLUSION

This research presents an Intelligent Evaluation Model for Determining Multiple Intelligence Profiles of Junior High Students Through Digital Likert Scale Architecture. The proposed model addresses the limitations of conventional assessment systems by introducing a structured digital framework capable of identifying diverse student intelligence characteristics.

The research demonstrates that integrating multiple intelligence indicators with web-based Likert scale assessment can provide a more comprehensive understanding of student learning potential. The proposed architecture consists of indicator formulation, digital response collection, automated data processing, intelligence profile calculation, and educational recommendation generation.

The model contributes to educational technology research by connecting intelligence assessment theory with digital system development. It provides a practical foundation for schools seeking to implement personalized learning approaches supported by data-driven evaluation.

The findings suggest that digital intelligence assessment can improve educational decision-making by enabling teachers to recognize student strengths and design more appropriate learning strategies. The model also supports the transition from standardized evaluation toward learner-centered assessment practices.

However, several limitations remain, including dependence on self-reported responses, challenges in designing accurate intelligence indicators, and differences in technological readiness among educational institutions. Future research should focus on empirical validation, integration with artificial intelligence methods, comparison with traditional assessment approaches, and implementation studies involving diverse school environments.

Ultimately, the proposed Intelligent Evaluation Model represents an important step toward developing adaptive educational systems where technology supports deeper understanding of student abilities. By combining assessment innovation with digital architecture, schools can move toward more inclusive, personalized, and intelligence-oriented learning environments.

REFERENCES

1. A. V. D. Lestari and K. Nisa, “Pengembangan Lembar Kerja Siswa Berbasis Multiple Intelligence Pada Materi Enzim Siswa Sma,” Edubiotik J. Pendidikan, Biol. dan Terap., vol. 3, no. 02, pp. 48–57, 2018.

2. Y. Agustyarini and J. Jailani, “Pengembangan Bahan Ajar Matematika Dengan Pendekatan Kontekstual Dan Metode Penemuan Terbimbing Untuk Meningkatkan Eq Dan Sq Siswa Smp Akselerasi,” J. Ris. Pendidik. Mat., vol. 2, no. 1, p. 135, 2015.

3. H. Hajering, “Faktor-Faktor Yang Mempengaruhi Tingkat Pemahaman Mahasiswa Pada Mata Kuliah Auditing,” YUME J. Manag., vol. 4, no. 2, pp. 233–246, 2021.

4. S. G. Jabali, S. Supriyono, and P. Nugraheni, “Pengembangan Media Game Visual Novel Berbasis Etnomatematika Untuk Meningkatkan Pemahaman Konsep Pada Materi Aljabar,” Alifmatika J. Pendidik. dan Pembelajaran Mat., vol. 2, no. 2, pp. 185–198, 2020.

5. S. N. A. Mufidah and Mukhlisin, “Pembentukan Kecerdasan Linguistik dan Keterampilan Membaca Alquran Siswa Madrasah Tsanawiyah,” J. Pendidik. Islam, vol. 4, no. 1, pp. 59–78, 2020.

6. H. Purwatiningsih, “Pengaruh Blended Learning Dan Gaya Belajar Terhadap Hasil Belajar IPA,” JTP - J. Teknol. Pendidik., vol. 16, no. 2, pp. 94–104, 2014.

7. D. M. Putri, B. Putra, and Bahrum, “Analisis Tingkat Kepuasan Belajar Mahasiswa Jurusan Biologi di IAIN Kerinci Selama Pembelajaran Online,” JPDK, vol. 4, no. 1, pp. 1–7, 2022.

8. H. Rodiawati and K. Komarudin, “Pengembangan E-Learning Melalui Modul Interaktif Berbasis Learning Content Development System,” J. Tatsqif, vol. 16, no. 2, pp. 172–185, 2018.

9. D. S. Sari and M. N. Wulanda, “Pengembangan lembar kerja mahasiswa berbasis proyek dalam meningkatkan kemampuan berfikir kreatif mahasiswa,” Nat. J. Ilm. Pendidik. IPA, vol. 6, no. 1, p. 20, 2019.

10. B. Widiyaningsih et al., “Pengembangan Dan Pemanfaatan Multimedia Pembelajaran Matematika Dengan Powtoon Di Masa Pandemi Covid-19,” J. Ekon. dan Tek. Inform., vol. 9, no. 1, pp. 47–57, 2021.

11. B. Indriyani and R. Munajah, “The Development of Digital Students Worksheets for Students Elementary School Subtheme My Blood Circulation is Healthy,” Bull. Pedagog. Res., vol. 2, no. 2, pp. 1–15, 2022.