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Adapted Integrated Transformational-Instructional Leadership Behaviors: Construct Validity and Perceptions among Teachers and Principals in Indonesian Vocational Schools

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A R T I C L E I N F O

A B S T R A C T

Purpose In the age of Society 5.0, characterized by the seamless integration of cyber systems and physical environments, educational leaders are challenged to adapt to the dynamic landscape of technology integration and societal transformation. This study examines an integrated leadership framework that merges instructional and transformational leadership paradigms to address the evolving needs of Vocational Schools (VS) in Society 5.0. **Method.** The framework method usedin this study provided a holistic approach to leadership, emphasizing the importance of instructional excellence, innovation, and collaboration. Instructional leadership principles were central to this framework, focusing on curriculum development, pedagogical practices, and assessment strategies tailored to the demands of the digital era. Moreover, the framework underscores the role of technology in enhancing communication, collaboration, and administrative efficiency within educational institutions. **Findings.** It is found that by leveraging digital platforms and resources, leaders can facilitate data-driven decision-making and promote transparency and accountability. The study also revealed that transformational leadership principles can be integrated to inspire stakeholders, foster a culture of innovation, and drive continuous improvement. Educational leaders can cultivate a culture of innovation, collaboration, and excellence that prepares students for success in the digital age. Through effective instructional leadership, school leaders can ensure the delivery of high-quality education that is relevant, engaging, and impactful, while transformational leadership inspires and empowers stakeholders toward a collective vision of excellence. **Implications for research and proactice** Overall, the integrated leadership framework offers a compelling strategy for navigating the complexities of Society 5.0 in education, equipping leaders with the tools and vision to drive excellence and prepare students for success in a rapidly changing world.

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Introduction

The landscape of education in Indonesia is undergoing significant transformation, with Vocational Schools (VS) emerging as pivotal institutions in the nation's quest for educational excellence and workforce preparedness (Aris Ichwanto et al., 2020). Against the backdrop of dynamic policy changes and global economic shifts, the role of VS in shaping the future of Indonesia's workforce is essential, as they play a vital role in human development and the preparation of dominant skills (Rahardjo, 2020). However, the system is facing challenges in meeting the demands for a modern, skilled and trained workforce, leading to a growing reliance on external models of engagement (Fairman et al., 2020). The strategic roles of vocational education in the ASEAN Economic Community (AEC) era are also highlighted, with a call for significant contributions from all stakeholders (Yahiji et al., 2019).

The revitalization of Indonesia's vocational education system, as outlined in Presidential Instruction Number 9 of 2016, has been a critical focus for the government in enhancing the quality and competitiveness of its human resources (Kailani & Rafidiyah, 2020). This has involved a range of strategies, including the improvement of teacher competency (Setiawan & Hamdani, 2021), the development of vocational professional teacher education (Setiawan & Hamdani, 2021), and the enhancement of industry linkages (Indrawati & Kuncoro, 2021). However, challenges remain, such as the need for further socialization of the revitalization program (Kailani & Rafidiyah, 2020) and the involvement of industry in curriculum development (Setiawan & Hamdani, 2021). Despite these challenges, the government's commitment to this endeavour is evident, and the ongoing efforts to strengthen vocational education in Indonesia are crucial for the country's future development.

Furthermore, the introduction of the "Merdeka Belajar" policy in 2019 reflects Indonesia's ambition to accelerate the transformation of its education system, empowering learners to become independent and self-reliant individuals (Tabroni et al., 2022). This policy has been implemented in various educational settings, including higher education institutions, where it has had a significant impact on autonomy and innovation (Purwanti, 2021). In the School for Children of Indonesia, the policy has been implemented through online learning methods, fostering potential development and active knowledge-seeking (Wulandari et al., 2020). The policy has also been successful in improving students' competencies and skills for global employability (Mursitama et al., 2022). Within this framework, VS play a central role in equipping students with the skills and knowledge needed to thrive in an ever-evolving global landscape.

Effective leadership in vocational education is crucial for driving innovation, inspiring change, and fostering a culture of excellence (Adams & Yusoff, 2019). The integration of instructional and transformational leadership models has been identified as a promising approach to enhancing school performance and student outcomes (Puruwita et al., 2022). In this context, instructional leadership practices, such as defining school goals and managing instructional programs, are essential (Puruwita et al., 2022). Transformational leadership, with its dimensions of idealized influence, inspirational motivation, intellectual stimulation, and individual consideration, has been found to be effective in promoting organizational change in educational sectors (Shrestha, 2020). Furthermore, the relationship between transformational school leadership and teacher agency is mediated by teacher self-efficacy, highlighting the importance of both leadership and teacher quality in school development and student achievement (Polatcan et al., 2023).

The limited research on leadership in Indonesian VS underscores the need for further exploration of this topic. The importance of leadership in higher education is highlighted by Murniati (2021), who identifies academic, community, and corporate leadership as key characteristics in private university organizations, while others have emphasized the role of leadership in curriculum changes (Novawan & Aisyiyah, 2020). However, the specific dimensions and behaviours of leadership in Indonesian VS remain unexplored. Furthermore, the unique challenges and opportunities faced by VS in Indonesia, such as the need for effective leadership in the context of sustainable education and the barriers to women's leadership, require tailored empirical studies (Cahyati et al., 2021; Nurtjahjani et al., 2020). Therefore, there is a pressing need for research that delves into the dimensions and behaviours of integrated leadership models in Indonesian VS.

This paper aims to address this gap by proposing a Framework of Adapted Integrated Transformational-Instructional Leadership for Indonesian Vocational High Schools (FAITIL-IVHS). The research aims are articulated through the following research questions:

1. To what extent does the proposed integrated leadership framework align with existing educational standards in Indonesia, and how does this alignment impact the effectiveness of academic leadership in preparing students for the demands of Society 5.0 and vocational education reform?
2. What are the construct validities of the dimensions and behaviors of the FAITIL-IVHS, particularly in the context of Society 5.0 and vocational education reform?
3. What are the significant differences, if any, in perceived consensus among teachers and leaders about the importance of the dimensions and behaviors of the FAITIL-IVHS model based on their ages, work experiences, genders, positions, educational qualifications, and school status?

Grounded in theory and informed by practical insights, this framework seeks to provide VS leaders with a roadmap for effective leadership practices that align with the regulatory framework and cultural context of Indonesian vocational education. By elucidating the dimensions and behaviours of integrated leadership models and examining their impact on school performance and stakeholder perceptions, this study seeks to contribute to the ongoing discourse on educational leadership in Indonesia. Ultimately, the findings of this research have the potential to inform policy and practice, empowering VS leaders to drive positive change and foster a culture of excellence within their institutions.

Literature Review

Instructional Leadership (IL) Model

Instructional Leadership (IL) is a prominent framework in the field of educational leadership, which has evolved over many years, with many researchers creating models to improve educational leadership practices (Lambrecht et al., 2022). Out of these models, the Instructional Leadership Model by Hallinger and Murphy is particularly notable for its influence (Hallinger et al., 2020). It emphasizes the establishment of school missions, the management of instructional programs, and the promotion of pleasant learning environments. Furthermore, Transformational Leadership has become increasingly important in diverse industries, highlighting the leaders' capacity to inspire and encourage

their followers towards common objectives. Leithwood and Jantzi's Transformational School Leadership model emphasizes the incorporation of leadership and management aspects to enhance organizational efficiency within the field of education (Litz & Blaik-Hourani, 2020). Comprehending the interconnections between these models and their consequences for leadership effectiveness is essential for educational leadership practitioners.

Effective educational leadership requires instructional excellence, creativity, and cooperation. Leaders in vocational schools can enhance their leadership practices, increase student results, cultivate a good learning environment, and promote organizational success by integrating instructional and transformational leadership models and aligning them with current norms and requirements (Bellibaş et al., 2021). The significance of adaptability and contextual relevance in educational leadership practices is emphasized by this interconnected approach, which highlights the ever-changing character of academic institutions.

The IL model developed by Hallinger and Murphy is highly esteemed for its all-encompassing approach, which skillfully integrates both direct and indirect leadership tactics to enhance student learning results (Fry & Egel, 2021). The model primarily outlines three essential elements, each of which has a significant impact on the teaching environment within schools (Hascher & Waber, 2021). Initially, it is imperative to establish a school's mission, which is a fundamental stage that establishes the overall direction for all future initiatives. This aspect highlights the significance of clearly expressing specific goals and principles, offering a detailed plan for the entire school community to adhere to.

The second dimension of the concept emphasizes the management of the instructional program, which involves a diverse range of responsibilities within educational administration (Chan, 2023). Instructional directors have the responsibility of overseeing education, making sure it aligns with academic standards, and managing the curriculum to create a unified and practical learning experience for students. Leaders can create a favourable climate for academic success and ongoing progress by actively participating in these activities.

The third feature of Hallinger and Murphy's concept is a good school learning climate, which highlights the crucial role of school culture in promoting student achievement (Shengnan & Hallinger, 2021). This component encompasses the whole ethos and culture within the school community, extending beyond the classroom. Instructional leaders have a crucial role in fostering a welcoming and inclusive atmosphere where students feel appreciated, driven, and empowered to acquire knowledge. Leaders establish an environment of inclusivity and mutual admiration, which creates a strong foundation for educational experiences that have a lasting impact on students even after they graduate.

Within each dimension, numerous functions and behaviours are clearly defined, each acting as a fundamental elements for effective instructional leadership. Leaders are expected to fulfil several roles and manage multiple tasks, such as setting and conveying school objectives and fostering professional growth among staff. Instructional leaders possess the ability to influence both the academic progress of their pupils and the general atmosphere and environment of the school through their choices and behaviours.

Essentially, Hallinger and Murphy's Instructional Leadership Model provides a comprehensive framework that acknowledges the interdependence of different leadership actions and their significant influence on student learning results. Leaders may create a dynamic

educational environment where all stakeholders succeed and prosper by focusing on three key aspects: establishing a school mission, overseeing the instructional program, and promoting a healthy school learning climate. With their forward-thinking guidance and steadfast dedication to achieving high standards, instructional leaders possess the capacity to motivate beneficial transformation and establish an enduring impact in the field of education.

Transformational Leadership in Educational Organizations

Transformational leadership is a powerful paradigm that originates from both industrial and political contexts (Jnaneswar & Ranjit, 2020). It is effective in inspiring and motivating followers to strive towards common goals. The leadership style, as defined by Bass and Avolio (1993), is centred on four key elements: idealized influence, inspirational motivation, intellectual stimulation, and individualized concern (Khan et al., 2022). Leaders who demonstrate idealized influence serve as exemplary examples, embodying the values and behaviours they aim to establish in their followers. They effectively communicate a powerful vision that inspires their team, sparking enthusiasm and dedication. Intellectual stimulation encompasses the act of questioning and pushing established norms, promoting originality and innovation, and cultivating analytical thinking among a group of individuals. In addition, leaders who practice customized consideration exhibit empathy and attentiveness towards the distinct needs and growth of every team member.

Leithwood and Jantzi (2000) have taken the principles of transformative leadership and applied them to educational organizations. They highlight certain crucial professional activities that are necessary for effective educational leadership within this framework. These methods involve cultivating a culture of participation, where all individuals involved are motivated to contribute and work together towards common objectives (Shields, 2023). Moreover, it is essential to offer help to both students and staff, encompassing mentorship, resources, and emotional support, in order to foster a supportive learning environment. Furthermore, promoting intellectual curiosity and development among both students and instructors cultivates a climate of ongoing enhancement and ingenuity within educational establishments.

Furthermore, in educational environments, transformational leaders establish elevated performance standards, pushing individuals and the company as a whole to pursue greatness (Usman, 2020). Through the establishment of explicit objectives and criteria, they foster a feeling of purpose and guidance, inspiring all members of the school community to strive towards shared goals. These individuals, with their forward-thinking leadership, motivate others to surpass their limitations and reach their maximum capabilities, eventually improving the quality of teaching and learning.

Transformational leadership in education is a comprehensive strategy that seeks to motivate and enable all those involved to achieve excellence. Leaders may foster a culture of cooperation, creativity, and continuous improvement within educational institutions by embodying characteristics such as integrity, empathy, and intellectual curiosity. These leaders have a profound impact on the educational community by promoting academic success and supporting the personal and professional development of those they lead.

Leadership in Indonesian Vocational Schools

In Indonesia, the instructional leadership in vocational schools (VS) is carefully organized and regulated according to a set of specific rules and criteria, which are clearly defined in ministerial decrees (Supriadi et al., 2021). These regulations function as guiding principles, emphasizing the crucial tasks and skills that are expected of school leaders. One fundamental aspect of these expectations is the unwavering commitment to improving the quality of education, which serves as the foundation of the educational system (Supriadi et al., 2021). Leaders in SMKs (vocational schools) are responsible for maintaining a delicate equilibrium between encouraging student engagement and cultivating entrepreneurial skills. This ensures a comprehensive educational experience for the students.

The concept of constructive leadership principles is fundamental to the ethos of educational leadership in Indonesian vocational institutions (Kadiyono et al., 2020). School leaders are not simply administrators but rather individuals with a visionary role in defining the academic path of their pupils. The individuals are anticipated to embody and demonstrate traits such as integrity, inventiveness, and inclusivity, promoting a culture of collaboration and ongoing enhancement within their institutions. By adopting these concepts, leaders may successfully guide their schools towards achieving excellence, empowering both faculty and students to realize their maximum capabilities.

Furthermore, the focus on entrepreneurial skills highlights the ever-changing nature of educational leadership in vocational institutions (Morris & König, 2020). Leaders are expected to cultivate a mindset of creativity and entrepreneurship in their pupils in response to the changing needs of the contemporary workforce. This involves providing students with the required skills and mentality to succeed in today's competitive environment, where adaptability and inventiveness are highly valued. School leaders have a vital role in fostering the future generation of entrepreneurs and industry leaders by using creative teaching methods and providing practical learning opportunities.

Alongside the promotion of entrepreneurship, educational leaders in SMKs are responsible for establishing a favourable learning environment that encourages comprehensive growth (Isra, 2020). In addition to achieving high academic standards, the objective is to foster persons who possess a wide range of abilities and values that are crucial for success in their personal and professional endeavours. Leaders must advocate for measures that encourage student engagement, social responsibility, and ethical leadership, thus establishing the groundwork for a prosperous and fair society.

Indonesian vocational schools are known for their unwavering dedication to achieving high standards, fostering creativity, and promoting inclusiveness in educational leadership. School leaders have a crucial role in determining the future of their students and the nation as a whole by following strict standards and demonstrating practical leadership concepts. With their steadfast commitment and forward-thinking guidance, they not only improve the quality of education but also motivate a new cohort of innovators ready to make significant impacts on society.

Adaptation of Integrated Leadership Model for Indonesian Vocational Schools

The integrated leadership model referred to here is a model that results from the combination or integration of instructional leadership with transformational leadership. In

order to be practicable in vocational schools (SMK) in Indonesia, the integrated result is then adapted to the regulations or standards of leadership applicable to SMKs in Indonesia. This adapted integrated model is encapsulated into a Framework of Adapted-Integrated Instructional-Transformational Leadership Model For Indonesian Vocational Schools (FAITIL-IVHS). The development of this framework goes through stages of Ready, Analysis, Extraction, and Distillation or READ (Dalglish et al., 2020). The models analyzed include: (1) the instructional leadership model by Hallinger and Murphy modified by (Hallinger et al., 2015); (2) the transformational leadership model by Leithwood and Jantzi (Leithwood & Jantzi, 1999); (3) leadership standards in Minister of National Education Regulation number 13 of 2007 (Sudibyo, 2007); and (4) leadership substance in Minister of Education and Culture Regulation number 34 of 2018 (Pendidikan, 2018).

The substance of these four models consists of behaviors or competencies comprising 150 items. Thematic content analysis is conducted on leadership behavior using thematic content analysis technique (Reedman et al., 2022). From all leadership behavior items, this analysis identifies 57 themes of integrated and adapted leadership behavior. Due to similarities and differences in the formulation of leadership behavior, each theme is derived from four models, three models, two models, or even only one model. These 57 new leadership behavior themes are then grouped into seven dimensions forming the adapted integrated instructional-transformational leadership framework for SMKs in Indonesia (The Framework of Adapted Integrated Transformational-Instructional Leadership for Indonesian Vocational High Schools) abbreviated as FAITIL-IVHS. The forming dimensions are: (1) Intra and Inter-Personal Characters (IIPC), (2) Future Orientation (FUOR), (3) Aspiration-Inspirational (ASIN), (4) Individual Motivational and Consideration (IMCO), (5) Instructional Supervision and Evaluation (ISEV), (6) Recognition and Reinforcement (ISEV), and (7) Involvement of World of Work and Community (IWWC). The interconnection between the dimensions of the four leadership models analyzed with the adapted framework is shown in Figure 1. The distribution of the 57 leadership behaviors into these seven dimensions is presented in Appendix 1.
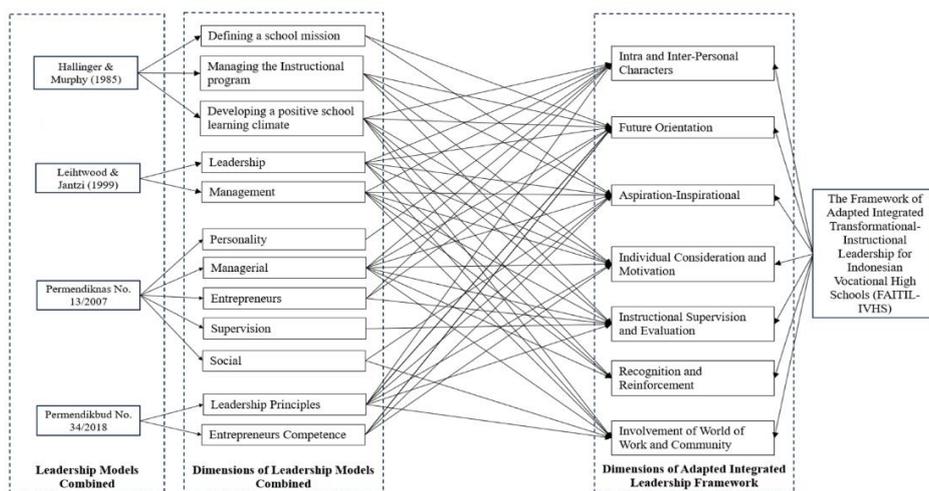

Figure 1: *Dimentional Interconnections Between Leadership Models Analysed.*

Methods

Research Design

This study utilized a quantitative research design with integration and adaptation executed through synthesis of the READ approach: (1) Ready your materials, (2) Extract data, (3) Analyze data, and (4) Distil your findings (Dalglish et al., 2020). This process yielded an integrated Leadership-Transformational Learning framework comprising seven dimensions with 57 questions.

Research Sample

A total of 302 respondents from 41 Vocational Schools (VS) in East Java, Central Java, and Jakarta were randomly sampled for this study. Of this cohort, 223 (73.8%) were teachers, and 79 (26.2%) were school principals. Concerning school status, 185 (61.1%) were from public VS, while 117 (38.9%) represented private VS. The distribution of respondents by gender was 182 (60.1%) male and 120 (39.9%) female. Furthermore, 75 individuals (24.9%) held Master's degrees (S2), while 227 (75.1%) were Bachelor's (S1) graduates.

Data Collection

Quantitative data were collected online using Google Forms and distributed via WhatsApp to all public and private VS principals, assisted by the Chairperson of the Vocational School Principal Work Council (MKKS) in East Java Province. This comprised a questionnaire with three sections. The first section encompassed demographic and school-related information, the second comprised 57 closed-ended statements, and the third consisted of one open-ended question. Demographic data included name, gender, teaching or administrative experience, highest education level, and age. School-related data covered the school's status (public/private) and location. Closed-ended questions were developed by integrating leadership behaviours from the Transformational School Leadership (TSL) model by Leithwood and Janzi (Leithwood & Sun, 2012; Leithwood & Jantzi, 1999; Leithwood, 1994) and the Principal Instructional Management Rating Scale (PIMRS) by Hallinger et al. while adapting to Indonesian principal regulations – Standards for School Principal/Madrasah (Sudibyo, 2007) and the National Standards for Vocational School/Madrasah Aliyah Kejuruan Education (P. M. Pendidikan & Nomor, 34 C.E). The open-ended question was provided to allow respondents to offer additional leadership behaviours.

The research instruments were presented in a 1-4 importance rating scale. Respondents were asked to score each leadership behaviour from 1 to 4, with one indicating 'not important' and four indicating 'very important'. Scores of 2 or 3 were given for behaviours falling between these extremes. The overall Cronbach's alpha value for instrument reliability was (α = .95), while for each dimension, it was: IIPC (α = .85), FUOR (α = .95), ASIN (α = .89), IMCO (α = .91), ISEV (α = .94), RERE (α = .95), and IWWC (α = .94).

Data Analysis

Data analysis techniques included Confirmatory Factor Analysis (CFA) to test construct validity, Mann-Whitney tests to examine perception differences based on various factors, Spearman Rank correlation tests to assess relationships between variables, and mean score calculations for categorizing the importance level of each related behaviour. All data analyses were conducted using the Open Source JASP 0.18.3 application.

Results and Discussion

The construct validity of the FAITIL-IVHS model was assessed through Second-Order Confirmatory Factor Analysis (CFA) utilizing the Diagonally Weighted Least Squares (DWLS) Estimator, chosen to accommodate the ordinal nature of the data. The loading factors of behaviour items onto dimensions and from dimensions to the overall model were computed using JASP 0.18.3, with results summarized in Table 1. Detailed loading factor values for each behaviour item can be found in Appendix 1, complemented by the model plot provided in Appendix 2. Evaluation of the model framework employed seven model fit indices as recommended by Kline (2023).

Table 1

Distributions of Standardized Estimation of. Factor Loading of Dimensions to Overall Model and Items to Dimensions of FAITIL-IVHS.

Dimensions (2nd Order Factors)	Std. Est. Factor Loading of Dimensions to Overall Model	Ranges of Std. Est. Factor Loading of Items to Dimensions	
		Minimum	Maximum
IIPC	0.857	0.639	0.856
FUOR	0.899	0.820	0.921
ASIN	0.957	0.654	0.881
IMCO	0.955	0.811	0.891
ISEV	0.951	0.687	0.927
RERE	0.939	0.836	0.901
IWWC	0.951	0.825	0.917

Table 1 displays the distribution of standardized estimation of factor loading of dimensions to the overall model and items to dimensions of FAITIL-IVHS. Loading factor values in CFA are considered acceptable if they exhibit practical significance greater than 0.630 and indicate a well-defined structure if exceeding 0.670. The summary reveals that all dimension loading factors in the FAITIL-IVHS model range from 0.857 (IIPC) to 0.957 (ASIN), while the loading factors of the 57 leadership behaviour items to their respective dimensions range from 0.639 to 0.927. These values meet the required significant boundaries, indicating that all FAITIL-IVHS construct-building leadership behaviour items satisfy construct validity requirements, and the seven FAITIL-IVHS dimensions also fulfil construct validity requirements.

Although some loading factors approach the minimum threshold, analysis in Appendix 1 reveals that only four leadership behaviour items have factor loading values below 0.70, namely IPC 5 (0.635), ASIN-7 (0.679), ASIN-8 (0.654), and ISEV-11 (0.687). The majority of items range from 0.726 (IIPC-3) to 0.917, demonstrating that the FAITIL-IVHS construct with its 57 items meets construct validity as a well-defined structure, satisfying practical significance requirements.

Additionally, FAITIL-IVHS underwent evaluation using several fit indices, as suggested by Hair, Black, and Anderson. Table 2 presents the values of the seven-fit index used. Comparison with Indicative of Acceptable Model cutoffs indicates that all indices meet expected cut-off values, surpassing universal cut-off values of 0.95 (Baumgartner & Homburg, 1996; Gomez et al., 2022; Hooper et al., 2008; Hu & Bentler, 1999; Tucker & Lewis, 1973). Consequently, it is concluded that the FAITIL-IVHS model proposed in the study is acceptable.

Table 2

Fit Indices of the FAITIL-IVHS (N=302, p>0.01).

Index	Value	Indicative of Acceptable Model (Cut-off)
Root mean square error of approximation (RMSEA)	0.033	<0.06
Comparative Fit Index (CFI)	0.999	>0.95
Standardized root mean square residual (SRMR)	0.047	<0.08
Goodness of fit index (GFI)	0.995	>0.9
Tucker-Lewis Index (TLI)	0.999	>0.95
Bentler-Bonett Non-normed Fit Index (NNFI)	0.999	>0.95
Bentler-Bonett Normed Fit Index (NFI)	0.995	>0.95

Perceived consensus, defined as the absence of significant differences among research subjects based on various factors, was assessed. Perception consensus analyses based on age and work experience differences utilized Spearman's Correlation test, while consensus based on other variables was analyzed using the Mann-Whitney Test. The consensus on each behaviour item was reached by assessing the significance of differences based on p-values with a confidence level of 99%. The recapitulation of p-values from dimensions and the range of all items is presented in Table 3, with the distribution of p-values for each dimension shown in Appendix 3.

Table 3

Distributions of p-Values of Dimensions and Their Ranges of Items p-Values of FAITIL-IVHS (N=302, p<.01).

Dimension	p-Values of Spearman's Correlations (Ranges among Items)		p-Values of Mann Whitney Test (Ranges among Items)			
	Age	Work Experiences	Gender	Positions	Educ. Qualification	School Status
IIPC	.387 (.018-.990)	.238 (.001-.901)*	.955 (.008-.887)*	.383 (.060-.657)	.132 (.067-.781)	.077 (.009-.918)*
FUOR	.611 (.205-.838)	.336 (.168-.954)	.312 (.069-.855)	.535 (.167-.971)	.731 (.373-.919)	.628 (.359-.817)
ASIN	.084 (.048-.881)	.098 (.034-.891)	.298 (.057-.929)	.484 (.181-.726)	.676 (.438-.926)	.815 (.530-.813)
IMCO	.661 (.407-.942)	.466 (.256-.873)	.575 (.301-.834)	.267 (.118-.899)	.711 (.080-.764)	.500 (.148-.963)
ISEV	.677 (.180-.929)	.682 (.230-.945)	.682 (.232-.929)	.211 (.111-.814)	.255 (.112-.991)	.965 (.144-.929)
RERE	.441 (.321-.997)	.238 (.303-.481)	0.017 (.002-.220)*	.54 (.199-.913)	.476 (.075-.762)	.466 (.395-.880)
IWWC	0.737 (.302-.911)	0.423 (.255-.847)	0.226 (.061-.685)	0.400 (.029-.935)	0.252 (.026-.973)	0.943 (.403-.858)

Empowering Educational Leaders

Instructional leadership (IL) and transformational leadership (TL) models are pivotal frameworks in shaping the educational landscape, particularly in the context of Society 5.0, where technological advancements and societal transformations are driving rapid changes. Instructional leadership, as pioneered by Hallinger and Murphy, emphasizes the critical role of school leaders in shaping and supporting teaching and learning processes. It involves a multifaceted approach, encompassing the establishment of clear school missions, effective management of instructional programs, and the cultivation of positive learning climates. In the era of Society 5.0, characterized by the integration of cyber systems and physical environments, instructional leaders must navigate the complexities of digital learning tools and emerging educational technologies to ensure that teaching and learning experiences remain relevant and impactful.

In contrast, transformational leadership, as conceptualized by Leithwood and Jantzi, revolves around inspiring and empowering stakeholders toward a collective vision of excellence. It goes beyond mere management tasks to ignite passion and commitment among faculty and staff. In the context of Society 5.0, transformational leaders play a crucial role in fostering a culture of innovation and adaptability. By leveraging technology and embracing change, educational leaders can capitalize on emerging opportunities to enhance teaching methodologies, personalize learning experiences, and prepare students for the challenges of an increasingly digital society. Through charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration, transformational leaders can drive meaningful change and growth within the school community, aligning educational practices with the demands of Society 5.0.

The development of transformational leadership in educational organizations stems from the idea of Leithwood [68], who substantially adapted the ideas of Bass and Avolio (Anderson, 2017; Bass & Avolio, 1993; Leithwood & Jantzi, 2000; Leithwood et al., 2004). Leithwood calls it the Transformational School Leadership (TSL) (Leithwood & Jantzi, 2000). This idea emerged in response to the limitations of learning leadership, which was considered less effective in dealing with the latest issues of educational organizations in the 1990s (Hallinger, 2003). Leithwood and Jantzi conceptualized transformational leadership as an integration of leadership and management dimensions (Leithwood & Jantzi, 2000). This leadership model is built on ten dimensions consisting of 6 leadership dimensions, and the rest are grouped under management dimensions. In measuring transformational leadership practices, Leithwood and Jantzi identified 53 leadership behaviour items (Leithwood & Jantzi, 1999). The details of the dimensions and the number of items of these transformational leadership behaviours are presented in Table 4. The behavioural description of the leadership practices of each dimension and subdimension is briefly described as follows.

Table 4

Dimensions of Transformational Leadership in Schools (Leithwood & Jantzi, 1999).

Dimension	Subdimensions	Number of leadership behaviour items
Leadership	1. Symbolizing professional practices and values	6
	2. Developing structures to foster participation in school decisions	6
	3. Offering individualized support	4
	4. Providing intellectual stimulation	7
	5. Demonstrating high-performance expectations	3
	6. Building school vision and goals	6
Management	7. Establishing effective staff practices	6
	8. Providing instructional support	5
	9. Monitoring school activities	5
	10. Providing a community focus	5
	Amount	53

By empowering educational leaders with the tools and knowledge derived from both instructional and transformational leadership models within the context of Society 5.0, schools can create a conducive environment for student success in the digital age. Effective leadership fosters collaboration, innovation, and a shared sense of purpose among educators, resulting in improved teaching practices and enhanced student outcomes. Furthermore, empowered leaders are better equipped to navigate the complexities of modern education, adapting to new challenges and leveraging technology to drive positive change. Ultimately, investing in the development of instructional and transformational leadership capabilities among school leaders is essential for building strong, resilient educational institutions that can effectively meet the needs of students and communities in the era of Society 5.0.

Catalyzing Vocational Education Reform

In the context of vocational schools (SMK) in Indonesia, where the demand for skilled workers continues to rise, effective leadership is paramount, especially in the transition towards Society 5.0. The integration of instructional and transformational leadership models offers a tailored solution to the unique challenges faced by vocational educators in this digital era. Vocational education plays a crucial role in preparing students for the workforce by providing practical skills and hands-on training. However, to truly excel in this endeavour, vocational

schools require visionary leaders who can navigate the complexities of educational reform and drive meaningful change while aligning with the principles of Society 5.0.

The emphasis on managing instructional programs within the integrated leadership framework aligns with the need for practical, hands-on learning experiences in vocational education. By supervising and evaluating instruction, coordinating curricula, and monitoring student progress, leaders can ensure that SMK students receive relevant and high-quality education that prepares them for the workforce in the digital age. Moreover, the integration of instructional and transformational leadership models fosters a culture of innovation and continuous improvement within vocational schools, which is essential for adapting to the evolving demands of Society 5.0. By inspiring and empowering stakeholders, leaders can cultivate a shared vision of excellence, motivate faculty and staff to embrace technological advancements and adapt teaching methodologies accordingly.

Additionally, the integrated leadership framework promotes collaboration and knowledge sharing among educational stakeholders, aligning with the principles of Society 5.0. By adopting a common language and set of practices, leaders can leverage technology and digital platforms to facilitate communication and coordination efforts, enabling more effective decision-making and problem-solving. This collaborative approach extends beyond individual schools to encompass broader educational networks and partnerships, fostering a culture of collective responsibility and shared success. Ultimately, by catalyzing vocational education reform through integrated leadership practices, vocational schools can play a pivotal role in preparing students for the demands of Society 5.0, driving economic growth and social development in Indonesia.

Aligning with Educational Standards

The proposed integrated leadership framework not only enhances educational practices but also aligns with existing educational standards in Indonesia, facilitating the transition towards Society 5.0. By incorporating principles from Ministerial Regulations on School Management and School Leadership Standards, academic leaders can ensure compliance with regulatory requirements while fostering innovation and excellence in line with the principles of Society 5.0. The emphasis on establishing effective staff practices and providing instructional support mirrors the standards outlined in Ministerial Regulations on School Management. Similarly, the focus on leadership principles and entrepreneurial competencies, as prescribed in Ministerial Regulations on Vocational School Standards, reflects the evolving needs of vocational education in a rapidly changing economic landscape driven by Society 5.0.

Moreover, the integrated leadership framework promotes a culture of accountability and transparency, which are core principles of effective school management in the digital age. By leveraging technology and digital platforms, leaders can enhance transparency in decision-making processes, facilitate data-driven assessments, and ensure that educational resources are used efficiently and effectively. Additionally, by aligning leadership practices with established standards, schools can enhance their reputation and credibility within the broader education community, attracting talented educators and students alike who are prepared to navigate the challenges and opportunities presented by Society 5.0.

Furthermore, the integrated leadership framework facilitates collaboration and knowledge sharing among educational stakeholders, which is essential for addressing the complex challenges

of Society 5.0. By adopting a common language and set of practices, leaders can leverage digital platforms and emerging technologies to connect with peers, share best practices, and access resources and expertise from around the world. This collaborative approach extends beyond individual schools to encompass broader educational networks and partnerships, fostering a culture of collective responsibility and shared success in preparing students for the demands of Society 5.0. Ultimately, by aligning with academic standards and leveraging integrated leadership practices, schools can serve as catalysts for societal transformation in the digital age, driving sustainable growth and prosperity in Indonesia and beyond.

Technology Integration in Indonesian Vocational School Leadership

The incorporation of technology into the leadership structure of vocational schools in Indonesia has significant potential to improve efficiency and foster transparency and accountability (Sofyani et al., 2020). Through the utilization of digital platforms and resources, educational administrators can simplify communication, enable decision-making based on data (Iddrisu et al., 2023), and cultivate an environment that encourages creativity and cooperation. It is crucial to customize these technology interventions to fit specific cultural and institutional contexts in order to optimize their effectiveness and guarantee their relevance.

Technology can improve leadership effectiveness by establishing strong communication channels (Riza et al., 2023). Digital platforms, such as online forums, messaging applications, and virtual meeting tools, facilitate real-time engagement between leaders and stakeholders, regardless of geographical constraints. This enables prompt distribution of information, encourages transparent conversation, and advances inclusiveness within the school community. Furthermore, with the utilization of social media and various online platforms, leaders can enhance their outreach endeavours, actively involving parents, alums, and industry partners in order to obtain support and input.

In addition, technology enables educational leaders to make decisions based on data by granting them access to extensive analytics and performance indicators. Educational software solutions such as learning management systems, student information systems, and others allow supervisors to monitor student achievement, identify areas that need improvement, and distribute resources efficiently. Through the utilization of big data and analytics, leaders can acquire vital insights regarding student learning outcomes, teacher efficacy, and overall school performance (Ojugo et al., 2023). This allows them to execute specific interventions and evaluate the effectiveness of their projects.

Technology is essential for increasing openness and accountability by creating effective channels for reporting and monitoring. Stakeholders can access up-to-date information on important performance indicators, financial expenditures, and governance processes through digital dashboards and reporting tools. The degree of transparency at this level not only promotes confidence and credibility among stakeholders but also ensures that leaders are held responsible for their actions and decisions. Furthermore, through the process of digitizing administrative procedures like budgeting, procurement, and human resources management, leaders may reduce the likelihood of fraud, corruption, and mismanagement. This, in turn, fosters a culture of responsibility and honesty inside the organization.

Nevertheless, the incorporation of technology in educational leadership is not without its difficulties and deliberations. An issue that may arise is the digital divide, which refers to the unequal access to technology and lack of digital literacy skills that can worsen

existing inequalities among students and teachers (Mariscal et al., 2023). It is necessary to implement specific measures such as ensuring fair access to devices and internet connectivity, establishing digital literacy training initiatives, and promoting an inclusive and diverse environment to tackle this difficulty. In addition, it is imperative to address issues around data privacy and cybersecurity by implementing strong rules and practices to protect sensitive information and adhere to regulatory obligations.

To summarize, incorporating technology into the leadership structure of vocational schools in Indonesia presents substantial prospects for improving efficiency, advancing openness, and cultivating responsibility. Leaders may optimize communication, enhance data-driven decision-making, and foster creativity and collaboration by utilizing digital platforms and resources that are customized to fit unique cultural and institutional contexts. Nevertheless, it is crucial to tackle obstacles like the disparity in access to digital resources and the protection of personal information in order to fully harness the capabilities of technology in educational leadership and provide fair and equal access and opportunities for all those involved.

Conclusion

The integration of instructional and transformational leadership models present a compelling framework for addressing the complex challenges and opportunities posed by Society 5.0 in educational settings. By empowering educational leaders with the tools and knowledge derived from both models, schools can cultivate a culture of innovation, collaboration, and excellence that prepares students for success in the digital age. Through effective instructional leadership, school leaders can ensure the delivery of high-quality education that is relevant, engaging, and impactful, while transformational leadership inspires and empowers stakeholders toward a collective vision of excellence.

Moreover, the proposed integrated leadership framework aligns with existing educational standards in Indonesia, facilitating the transition towards Society 5.0 while promoting accountability, transparency, and continuous improvement. By leveraging technology and digital platforms, leaders can enhance communication, collaboration, and knowledge sharing among educational stakeholders, fostering a culture of collective responsibility and shared success. However, it is essential to acknowledge the limitations of this study. Firstly, the proposed integrated leadership framework is based on theoretical concepts and may require further empirical validation to assess its effectiveness in real-world educational settings. Additionally, the study primarily focuses on the Indonesian context, and the applicability of the framework to other cultural and institutional contexts remains to be explored. Moreover, the study mainly examines the perspectives of educational leaders and teachers, and future research could benefit from incorporating the viewpoints of other stakeholders, such as students, parents, and policymakers.

Future studies could explore the implementation and impact of the integrated leadership framework in diverse educational contexts, assessing its effectiveness in promoting student learning outcomes, teacher satisfaction, and school performance. Longitudinal studies could also provide insights into the long-term effects of integrated leadership practices on educational institutions' resilience and adaptability in the face of emerging challenges and opportunities. Furthermore, comparative studies could investigate the similarities and differences in leadership practices across different countries and educational systems, shedding light on the universal principles underlying effective leadership in the digital age.

In conclusion, while this study provides a foundation for understanding the role of integrated leadership in navigating the complexities of Society 5.0 in educational settings, FAITIL-IVHS. Further research is needed to explore its potential and limitations fully. By addressing these study limitations and advancing our understanding of integrated leadership practices, we can better prepare educational institutions to thrive in the era of Society 5.0, driving positive change and innovation in education for the benefit of students, communities, and societies worldwide.

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Appendix 1: Dimensions and Behaviors of FITLA-IVHS

Dimensions and Behavioral Items	Codes	Category of Importance
I.Intra and Inter-Personal Characters	**IIPC**	
1. Willing to change actions after gaining new knowledge or understanding	IIPC-1	Sangat Penting
2. Being a model problem solver and a symbol of achievement and success for teachers and staff	IIPC-2	Very Important
3. Appear positive when with teachers, students and the community	IIPC-3	Very Important
4. Being inclusive and not showing favouritism towards individuals or groups of teachers, staff or students.	IIPC-4	Very Important
5. Be respectful to students and treat and respect staff as professionals	IIPC-5	Very Important
6. Facilitate and create an atmosphere of mutual care, trust and effective communication between teachers and staff.	IIPC-6	Very Important
7. Open to be met or accessed by students, teachers, and staff.	IIPC-7	Very Important
8. Open to be met or accessed by students, teachers, and staff	IIPC-8	Important
II.Future Orientation	**FOUR**	
9. Able to formulate school vision, mission and objectives (VMT) that are easy, clear and can be implemented by the school community	FUOR-1	Very Important
10. Communicating and providing an understanding of the school's VMT to the school community.	FUOR-2	Very Important
11. Explain the relationship between the school VMT and the school organizer's policy (government or foundation)	FUOR-3	Very Important
12. Facilitating deliberation to reach a consensus in determining priority programs to achieve the school VMT.	FUOR-4	Very Important
13. Distributing and delegating the leadership of Important activities to teachers and staff in order to achieve the school VMT.	FUOR-5	Very Important
14. Lead deliberations to make decisions on curricular activities that refer to the school's VMT	FUOR-6	Very Important
15. Explaining the practical implications of the school VMT on the tasks and functions of each teacher and staff member	FUOR-7	Very Important
16. Encouraging teachers and staff to review the suitability of their professional ideals with the school VMT is also essential.	FUOR-8	Very Important
17. Monitoring and evaluation of the school's VMT coverage in the learning designs made by teachers (Prota, Promes, lesson plans, teaching materials)	FUOR-9	Important
18. Assessing the performance and achievement of the school's VMT using various methods	FUOR-10	Very Important
III.Aspiration-Inspirational	**ASIN**	
19. Developing norms and values that support openness to change in schools	ASIN-1	Very Important
20. Setting high expectations and standards for teachers, students and staff	ASIN-2	Important
21. Providing proportional autonomy to teachers and staff to make decisions related to their respective jobs	ASIN-3	Important
22. Being able to adequately involve teachers and staff in identifying problems and making decisions to solve problems faced by the school	ASIN-4	Important
23. Exploring and utilizing the aspirations of teachers and staff before determining actions related to their respective tasks	ASIN-5	Important
24. Able to make and implement placement policy assignments evenly and equitably according to each staff's expertise	ASIN-6	Important
25. Involving existing teachers and staff in the recruitment and appointment of new personnel.	ASIN-7	Important
26. Carrying out orientation and welcoming new teachers or staff	ASIN-8	Important
IV.Individual Motivational and Consideration	**IMCO**	
27. Identify the uniqueness and specificity of the needs, strengths and weaknesses of each teacher and staff member.	IMCO-1	Important
28. Encouraging teachers and staff to become innovators by practising new things according to their interests and fields of work.	IMCO-2	Very Important
29. Facilitating teachers and staff to interact, learn from each other and share knowledge and skills for professional development.	IMCO-3	Very Important
30. Facilitating teachers to practice the knowledge and skills gained from professional development	IMCO-4	Very Important
31. Blocking and managing resources (money, infrastructure, materials, etc.) to facilitate teachers and staff to improve their performance	IMCO-5	Very Important
32. Serving as a source of new ideas for the professional development of teachers and staff	IMCO-6	Very Important
33. Motivating teachers and staff to achieve their professional development goals.	IMCO-7	Very Important
V.Instructional Supervision and Evaluation	**ISEV**	
34. Conduct classroom visits in the context of learning supervision on a regular and continuous basis, both formal and informal.	ISEV-1	Very Important
35. Follow up the results of classroom visits with teachers to improve the effectiveness of the work of the teacher concerned.	ISEV-2	Very Important
36. Mastering educational issues and problems at local, regional, national and international levels	ISEV-3	Important
37. Teachers should constantly be stimulated to implement concrete actions to improve student learning.	ISEV-4	Very Important
38. Evaluate learning based on student work.	ISEV-5	Very Important
39. Making decisions based on the results of student learning assessment	ISEV-6	Very Important
40. Conveying information in writing about the school's performance achievements to the school community.	ISEV-7	Important
41. Discussing the school's academic performance with teachers to identify the strengths and weaknesses of curricular activities	ISEV-8	Very Important

	Dimensions and Behavioral Items	Codes	Category of Importance
42.	Analyzing and discussing student learning progress with teachers	ISEV-9	Important
43.	Informing students of the school's academic progress	ISEV-10	Important
44.	Actively participate in reviewing educational materials.	ISEV-11	Important
	Recognition and Reinforcement	**RERE**	
45.	Provide formal and non-formal recognition and rewards to excellent/superior students using various methods, forums and media.	RERE-1	Important
46.	Communicating superior and exemplary student achievements or contributions to parents.	RERE-2	Very Important
47.	Motivating teachers to recognize and reward the contributions and achievements of students.	RERE-3	Very Important
48.	Taking appropriate action (sanctions) for students who behave in a deviant and undisciplined manner 5.	RERE-4	Very Important
49.	Rewarding teachers and staff in accordance with the contributions they make to the school using various methods (e.g. public announcements in multiple media, personal praise, recording in personnel documents)	RERE-5	Important
	VII.Involvement of World of Work and Community	**IWWC**	
50.	Build community understanding to jointly limit disruptions to learning activities.	IWWC-1	Important
51.	Maintaining and securing the independence (autonomy) of the school in making decisions and implementing actions	IWWC-2	Important
52.	Minimizing disruptions coming from inside and outside the school to student learning activities	IWWC-3	Very Important
53.	Be sensitive to the aspirations and expectations of the community and IDUKA.	IWWC-4	Very Important
54.	Incorporating the characteristics and values of the community, industry and the world of work (IDUKA) into daily school activities	IWWC-5	Important
55.	Build productive working relationships with the community and IDUKA	IWWC-6	Very Important
56.	Establishing an effective School Committee structure or structure for decision-making.	IWWC-7	Important
57.	Involve the community and IDUKA in planning and implementing school programs.	IWWC-8	Important

Appendix 2: Statistical Coefficients of The Dimensions and Behaviors of FITLA-IVHS (N=302)

Dimension and Item Codes	Impotance Scores	Standard Deviations	Std. Est. Loading Factors	*p-Values* of Spearman's Correlations		*p-Values* of Mann Whitney Test			
				Age	Work Experiences	Gender	Positions	Educ. Qualification	School Status
IIPC	3.57	0.50	0.857	0.387	0.238	0.955	0.383	0.132	0.077
IIPC-1	3.48	0.78	0.735	0.752	0.573	0.826	0.060	0.348	0.009
IIPC-2	3.52	0.75	0.776	0.433	0.324	0.692	0.452	0.781	0.117
IIPC-3	3.74	0.57	0.726	0.797	0.901	0.012	0.402	0.535	0.364
IIPC-4	3.68	0.66	0.832	0.565	0.549	0.008	0.657	0.356	0.714
IIPC-5	3.52	0.78	0.639	0.068	0.082	0.849	0.416	0.174	0.513
IIPC-6	3.66	0.67	0.856	0.990	0.953	0.208	0.299	0.590	0.918
IIPC-7	3.62	0.66	0.805	0.018	0.001	0.278	0.162	0.140	0.400
IIPC-8	3.31	0.87	0.756	0.254	0.203	0.887	0.374	0.067	0.079
FOUR	3.48	0.61	0.899	0.611	0.336	0.312	0.535	0.731	0.628
FUOR-1	3.54	0.75	0.907	0.708	0.541	0.114	0.443	0.846	0.371
FUOR-2	3.54	0.73	0.890	0.677	0.860	0.534	0.289	0.885	0.546
FUOR-3	3.48	0.75	0.921	0.534	0.370	0.855	0.269	0.738	0.359
FUOR-4	3.52	0.68	0.820	0.763	0.537	0.497	0.631	0.568	0.828
FUOR-5	3.48	0.72	0.839	0.561	0.276	0.069	0.971	0.935	0.358
FUOR-6	3.49	0.71	0.892	0.652	0.954	0.584	0.391	0.373	0.617
FUOR-7	3.42	0.76	0.892	0.789	0.505	0.776	0.259	0.492	0.679
FUOR-8	3.46	0.76	0.862	0.838	0.467	0.655	0.851	0.639	0.817
FUOR-9	3.39	0.77	0.857	0.205	0.168	0.301	0.541	0.709	0.468
FUOR-10	3.45	0.76	0.915	0.455	0.344	0.084	0.167	0.919	0.443
ASIN	3.31	0.63	0.957	0.084	0.098	0.298	0.484	0.676	0.815

ASIN-1	3.51	0.73	0.881	0.587	0.891	0.555	0.362	0.774	0.763
ASIN-2	3.37	0.80	0.810	0.719	0.422	0.242	0.181	0.438	0.654
ASIN-3	3.33	0.82	0.808	0.524	0.324	0.324	0.564	0.926	0.780
ASIN-4	3.36	0.81	0.873	0.254	0.120	0.608	0.621	0.505	0.530
ASIN-5	3.36	0.82	0.877	0.048	0.151	0.057	0.726	0.722	0.558
ASIN-6	3.38	0.80	0.870	0.057	0.034	0.371	0.448	0.842	0.683
ASIN-7	3.06	0.97	0.679	0.298	0.328	0.929	0.683	0.863	0.571
ASIN-8	3.07	0.94	0.654	0.124	0.176	0.528	0.704	0.827	0.813
IMCO	3.42	0.65	0.955	0.661	0.466	0.575	0.267	0.711	0.500
IMCO-1	3.23	0.91	0.811	0.614	0.256	0.834	0.72	0.617	0.597
IMCO-2	3.40	0.79	0.858	0.445	0.482	0.322	0.130	0.599	0.264
IMCO-3	3.43	0.78	0.846	0.702	0.676	0.307	0.257	0.764	0.963
IMCO-4	3.45	0.77	0.879	0.574	0.358	0.388	0.899	0.277	0.545
IMCO-5	3.50	0.79	0.876	0.713	0.522	0.301	0.118	0.080	0.665
IMCO-6	3.44	0.80	0.862	0.942	0.873	0.825	0.442	0.651	0.299
IMCO-7	3.49	0.76	0.891	0.407	0.358	0.326	0.248	0.483	0.148
ISEV	3.40	0.64	0.951	0.677	0.682	0.040	0.211	0.255	0.965
ISEV-1	3.42	0.82	0.904	0.345	0.232	0.400	0.111	0.991	0.144
ISEV-2	3.42	0.81	0.927	0.585	0.577	0.337	0.230	0.494	0.489
ISEV-3	3.38	0.80	0.834	0.180	0.230	0.129	0.056	0.217	0.337
ISEV-4	3.48	0.76	0.879	0.929	0.917	0.054	0.405	0.310	0.653
ISEV-5	3.41	0.81	0.856	0.918	0.942	0.145	0.188	0.112	0.934
ISEV-6	3.44	0.78	0.877	0.823	0.995	0.813	0.594	0.708	0.929
ISEV-7	3.35	0.84	0.846	0.496	0.313	0.177	0.418	0.195	0.786
ISEV-8	3.40	0.78	0.893	0.844	0.937	0.425	0.710	0.121	0.591
ISEV-9	3.39	0.78	0.857	0.776	0.945	0.022	0.741	0.145	0.820
ISEV-10	3.39	0.81	0.847	0.760	0.648	0.083	0.814	0.726	0.569
ISEV-11	3.29	0.83	0.687	0.704	0.678	0.063	0.244	0.443	0.746
RERE	3.44	0.65	0.939	0.441	0.238	0.017	0.54	0.476	0.466
RERE-1	3.37	0.85	0.888	0.577	0.395	0.041	0.913	0.762	0.395
RERE-2	3.42	0.77	0.836	0.357	0.358	0.153	0.199	0.337	0.499
RERE-3	3.50	0.76	0.901	0.747	0.481	0.220	0.710	0.415	0.880
RERE-4	3.55	0.67	0.844	0.321	0.303	0.002	0.762	0.731	0.789
RERE-5	3.38	0.83	0.863	0.997	0.373	0.071	0.476	0.075	0.545
IWWC	3.42	0.69	0.951	0.737	0.423	0.226	0.400	0.252	0.943
IWWC-1	3.39	0.82	0.885	0.368	0.267	0.157	0.356	0.973	0.704
IWWC-2	3.39	0.78	0.917	0.801	0.508	0.350	0.537	0.574	0.699
IWWC-3	3.47	0.79	0.867	0.905	0.847	0.221	0.361	0.441	0.858
IWWC-4	3.44	0.82	0.916	0.547	0.436	0.061	0.029	0.366	0.403
IWWC-5	3.40	0.82	0.913	0.302	0.255	0.159	0.496	0.879	0.503
IWWC-6	3.50	0.79	0.911	0.911	0.774	0.356	0.350	0.602	0.753
IWWC-7	3.36	0.85	0.906	0.630	0.820	0.252	0.935	0.026	0.567
IWWC-8	3.37	0.84	0.825	0.878	0.708	0.685	0.672	0.567	0.742

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Appendix 3: Model Plot of Dimensions and Behaviors of FITLA-IVHS (N=302)