

The influence of leadership on factors related to teachers in Islamic boarding schools

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Abstract: This study examines the influence of leadership on factors related to teachers in Islamic boarding schools. Being a multicultural country that boasts harmony and peaceful living, Indonesia supports educational policies related to its citizens' beliefs in the form of Islamic boarding schools. While harboring a sizeable Muslim population, the Islamic boarding school (IBS) with an exceptional curriculum parallel with Islamic teaching, namely pesantren, is developed and led by *Kyai*, who has a role like principal in regular schools. As the school's central figure, *Kyai*'s leadership will inevitably determine the teaching quality of its students. The current study aimed to understand the association between *Kyai*'s leadership style and teaching team-related factors, mediated by collaboration and a supportive school culture. Questionnaire data was collected from 85 teachers at an Islamic boarding school in the West Java Province of Indonesia. Hypotheses in the tested model were analyzed using the SEM-PLS method. We found that supportive school culture is not associated with distributive leadership. Distributed leadership lacks the mediating role of school culture, while instructional leadership positively impacts job satisfaction and personal confidence. Furthermore, the data suggests that both teacher cooperation and school culture have a negligible influence on the comprehensive framework. Based on those results, in Islamic Boarding Schools, it is important for *Kyai* to foster a nurturing school environment and promote collaboration among *Asatidz* (teachers) in their educational roles; these elements have been shown to significantly correlate with the *Asatidz*'s sense of job fulfillment and their confidence in their teaching abilities.

Keywords: *Distributed leadership, Instructional leadership, Islamic boarding school, Supportive school culture, Teacher's collaboration, Teacher's job satisfaction, Teacher's self-efficacy.*

1. Introduction

Indonesia is an archipelago country in Southeast Asia that is rich in diversity due to its hundreds of ethnic groups and languages; the Pancasila ideology unites them, showcasing Indonesia's cultural and religious values as a nation. The government in various ways empowers the embedded pluralism in Indonesians, resulting in a unique education policy based on multicultural ideas and ideals. A noticeable example of the multicultural education policy output is multicultural subjects in the school's curriculum and a multicultural calendar with issued religious holidays [1]. We can depict a picture of diversity and religious harmony in Indonesia since its citizens understand the importance of protecting and maintaining peaceful living [2].

We are in a competitive world, and organizations must be prepared to anticipate and handle the changes, both internally and externally. Accordingly, the head of the organization is up for the challenge of driving the changes, thus making the managerial leadership of the organization's leader crucial for accomplishing its goals. This also applies to educational institutions.

In the Indonesian education system, there are several options of schools for youngsters to: public, private, and religious boarding schools. Religious boarding schools have additional focus on religious curriculum, i.e., Catholic, and Islamic. Indonesia widely divides Islamic schools into two groups based on their operations: *madrasah* and *pesantren*. The *madrasah* is a school whose curriculum includes 30% of religious subjects and 70% of general subjects [3]. The students in this school are the same as those in public or private schools, but they have a deeper understanding of religious materials. In the second group, *pesantren*, we will use IBS (Islamic Boarding School) term to represent this type of school, which is commonly known as boarding schools and teaches students exclusively religious curriculum. IBS is the oldest education known in Indonesia and has existed since the pre-colonial era [4].

The depiction of IBS as a conventional school focuses on facilitating education, particularly, in Muslim religious materials such as Quran recitation, fiqh, and hadith. Research identifies several problems in IBS, such as informal management practices, a lack of creativity or innovation in the learning process, and the graduates' often incompetence to join the nation's workforce [5]. In addition, the adoption of information technology in many IBS is lacking, despite the benefits that it could bring. To stay competitive, IBS needs to address changes in curriculum, teaching methodology, and adoption of information technology [6]. These changes can be brought about under the leadership of Kyai.

The role of Kyai is different from that of an ordinary school principal. Not only is he a competent and charismatic school leader, but he must also be a Muslim scholar who can be a decent role model for his students. In the current study, the author finds that Kyai often acts as the primary decision-maker, and the IBS policies are built around his concerns. Those characteristics made Kyai the a central figure in IBS and his leadership was as crucial as ever for IBS's sustainability.

To lead the IBS, Asatidzs help the Kyai; their role is the same as teachers in other types of schools. This implies that the IBS ecosystem functions similarly to other school types, with a single authority leading a teaching team. The difference is that policy or decision-making stated by Kyai is deterministic, meaning it is absolute [5]. It is problematic for the institution when the acting leader lacks proper leadership to support its development. This may result in a decrease in a teacher's efficacy as a teacher and hinder collaboration in the institution. Previous studies have made efforts to address this issue. A study observed the influence of the head of IBS's leadership on teacher's performance [7]; another study found a significant influence from *Kyai's* leadership toward teacher's work ethic [8]. Nevertheless, both studies did not address the type of leadership used by Kyai. However, Liu, et al. [9], already studied the influence of two leadership styles (instructional and distributed leadership) on teacher self-efficacy and job satisfaction based on the Teaching and Learning International Survey (TALIS) dataset. The author deemed that the approach from Liu's study can be modified and used in the current study since the IBS environment is the same as other types of schools [9].

On the other hand, there are other factors that could affect it, such as age and industry sectors [10]. Another important factor, culture, plays an important role in shaping leadership [11]. Different cultures will have different values, norms, and expectations regarding leadership styles and decision-making. Since IBS is an authentic Indonesian Islamic boarding school, it has a unique educational culture. We believe that there is still a research gap that needs to be investigated, especially regarding the role of instructional and distributed leadership in teacher's related factors. Considering the unique educational culture of an authentic Indonesian Islamic boarding school (IBS), particularly the culture of leadership styles and decision-making, this study aims to address the research gap by formulating the following question: "How do instructional and distributed leadership impact teacher-related factors within the context of IBS?" The research's significance lies in its potential to enhance our understanding of leadership dynamics in a culturally rich educational setting, which could inform more effective leadership strategies tailored to the needs of IBS teachers.

We aimed to close the gap and understand which type of leadership is suited to enhance teacher's self-efficacy and job satisfaction in IBS as an educational institution. We observed the influence through two mediating variables: teachers' collaboration and supportive school culture.

2. Literature Review

2.1. Job Performance

Job performance refers to achieving results associated with the organization's vision and mission [12]. People often perceive it as the degree to which an individual successfully fulfills their responsibilities and attains desired outcomes in the workplace. Job performance encompasses employees' work quality, quantity, and effectiveness [13]. Therefore, we can infer that job performance is how well an employee performs tasks related to the company's desired outcomes.

Job performance assessment is crucial for organizations [14, 15], as it provides insights into how employees contribute to their goals and objectives. A high level of job performance indicates that employees are meeting or exceeding expectations, producing high-quality work, and making valuable contributions to the organization's success. Therefore, organizations often strive to implement performance management systems by providing feedback, coaching, and development opportunities to optimize job performance and drive overall organizational success. Ideally, schools should adopt a performance management system because their primary goal is to provide education that produces high-quality individuals. However, it largely depends on the leadership practiced in that school.

The current study uses two related factors that could impact job performance of Asatidz, namely self-efficacy and job satisfaction. We investigate the use of both leadership styles in IBS, as well as the role of supportive school culture and teacher collaboration as intervening variables.

2.2. Instructional Leadership (IL) and Distributed Leadership (DL)

Leadership, e.g., transformational leadership, is pivotal in shaping and influencing individual and organizational performance [16]. Leaders can set clear goals, provide guidance and support, inspire, and motivate their team members, and create a positive work environment that fosters productivity and engagement. The academic environment has two prevalent leadership styles: instructional leadership and distributed leadership. Both concepts help to guide change and create an effective school learning environment.

An instructional leader is an individual who is responsible for organizing, promoting development, and cultivating a positive mindset toward change in education [17]. Instructional leadership is a top-down approach within the framework of educational leadership that aims to guide educators by providing guidance and direction to achieve desired goals through strong authority Barth [18]. Hallinger and Murphy [19] argue that educational instructional leadership involves establishing the school's mission, overseeing instructional programs, and fostering a positive learning environment [19]. Despite having the highest authority in the structure, it is essential to note that the leader should seek teachers' input regarding curriculum, instructions, or assessment [20]. Therefore, we can conclude that the instructional leadership style employs a top-down approach, involving the leaders closely with members to provide instructions and monitor them, thereby fostering and maintaining a positive learning environment.

Another approach, distributed leadership, has different characteristics. Distributed leadership involves significant interactions among leaders, followers, and situational aspects [21]. Harris argues that distributed leadership entails sharing responsibilities and authority among various organization members [22]. This means that there is a group of handful of people chosen to help the leader with a specific task. Therefore, the leadership is not limited to a single person but is distributed throughout the organization [23]. We can infer that a distributed leadership style emphasizes teamwork rather than relying solely on the leader's instructions since authorities are shared. Heads are only part of the leadership practice in any school, as there are inevitably many other sources of influence and direction [24].

In the IBS's educational environment, the Kyai, as headmaster, often practices leadership by instructing Asatidz and its students. Munna found that leader requires competence to provide instructions, yet it is not enough to support the quality teaching's formation [25]. It would be wise to consider establishing divisions to support Kyai, since students are most involved with the Asatidz.

2.3. Teachers' Collaboration (TC) and Supportive School Culture (SSC)

A supportive school culture fosters a positive and nurturing educational environment. School culture, encompassing shared values, beliefs, norms, traditions, and practices, shapes the overall atmosphere within a school [26]. It encompasses the attitudes and behaviors of students, teachers, administrators, and other school community members. Within a supportive school culture, there is an emphasis on mutual respect, open discussion of difficulties, sharing ideas and successes, and cultivating positive relationships between teachers and students [9].

This culture promotes an inclusive and collaborative learning environment where all individuals feel valued and supported. A supportive school culture enhances student engagement, academic achievement, and overall well-being by creating a system of meaning that influences every aspect of the school, including school effectiveness [27]. It fosters a sense of belonging, encourages a growth mindset, and empowers students to reach their full potential. Moreover, a supportive school culture sets the stage for effective teaching practices, collaboration among staff, and strong partnerships with families and the wider community, ultimately creating an optimal learning experience for all stakeholders involved. Therefore, teachers' collaboration is necessary to conduct and maintain a supportive school culture. Therefore, we need to determine which of the two leadership styles contribute to the development of a supportive school culture; we have developed our hypotheses as follows:

H₁: The use of instructional leadership influences the development of supportive school culture.

H₂: The use of distributed leadership influences supportive school culture development

Teacher collaboration entails teachers actively working together to share knowledge, experiences, and resources, with the goal of improving teaching practices and fostering improved student learning outcomes. It involves a collaborative and ongoing process where educators communicate, cooperate, and coordinate, aligning their instructional practices, goals, and assessments in a collective effort [28]. Within this collaborative endeavor is a shared commitment to student success and recognition of the importance of continued professional growth [28]. Teachers take a concrete and systematic step toward improving the quality of education by engaging in collaboration, which directly impacts students' effectiveness and overall educational experience [29]. Through this collaborative approach, teachers can leverage their collective expertise and resources, resulting in a more enriched and impactful teaching and learning environment. However, which leadership style can influence teachers to collaborate is still unknown; thus, we developed hypotheses accordingly.

H₃: The use of instructional leadership influences the teacher collaboration.

H₄: The use of distributed leadership influences the teacher collaboration.

2.4. Teacher Self-Efficacy (TSE) and Teacher Job Satisfaction (TJS)

Teacher self-efficacy is defined as a judgment of one's capabilities to bring about desired outcomes of student engagement and learning, even when students are difficult or unmotivated [30]. Higher-self-efficacy teachers are more open to new ideas or teaching methods; they exhibit a greater level of planning and organization, are more constructive in dealing with the mistakes of their students, and are more persistent in the face of difficulty [31]. As a result, teacher self-efficacy is a theoretical construct that is very relevant in the classroom.

A supportive school culture plays a crucial role in enhancing teacher job satisfaction and self-efficacy [9]. When teachers feel valued and supported by their colleagues and administration, they are more likely to experience a sense of belonging and commitment to their school. This positive environment fosters collaboration and professional growth through peer support and open discussion [32] and, furthermore, allows teachers to share resources, ideas, and teaching strategies, which in turn boosts their confidence in their abilities. Furthermore, recognition of their efforts and achievements can reinforce their job satisfaction, as they see tangible results from their work. Additionally, a supportive culture can provide a safety net for teachers to take pedagogical risks [33], which can lead to innovative teaching practices and improved student outcomes, further increasing teachers' belief in their efficacy. Ultimately, a school

culture that nurtures teacher development and well-being can lead to a more motivated, effective, and satisfied teaching staff.

Teacher collaboration plays a crucial role in enhancing job satisfaction among educators [9, 34]. When teachers work together, they create a supportive community that fosters professional growth and shared knowledge to improve teaching practices [20]. This sense of community can lead to a more positive work environment, reducing feelings of isolation and burnout. Collaborative efforts allow teachers to share resources, strategies, and insights, which can make their workload more manageable and their teaching practices more effective. As a result, teachers often feel more valued and fulfilled in their roles, contributing to higher levels of job satisfaction.

Furthermore, teacher collaboration was found to have an impact on teachers' self-efficacy [9, 35-37]. Self-efficacy refers to a teacher's belief in their ability to affect student learning and manage classroom challenges. Through collaboration, teachers can observe and learn from each other's successes, which can boost their confidence in their teaching abilities. They can also provide and receive constructive feedback, helping them refine their skills and overcome obstacles. This collaborative learning environment encourages continuous improvement and innovation, leading to a stronger sense of competence and self-efficacy among teachers. Thus, we developed the following hypotheses:

H₅: Supportive School Culture influences teachers' job satisfaction.

H₆: Supportive School Culture influences teachers' self-efficacy.

H₇: Teacher collaboration influences teachers' job satisfaction.

H₈: Teacher collaboration influences teachers' self-efficacy.

The current study aims to determine which leadership style enhances Asatidz self-efficacy and job satisfaction. Thus, Kyai can be exposed to the result and practice leadership accordingly. Figure 1 illustrates the research model.

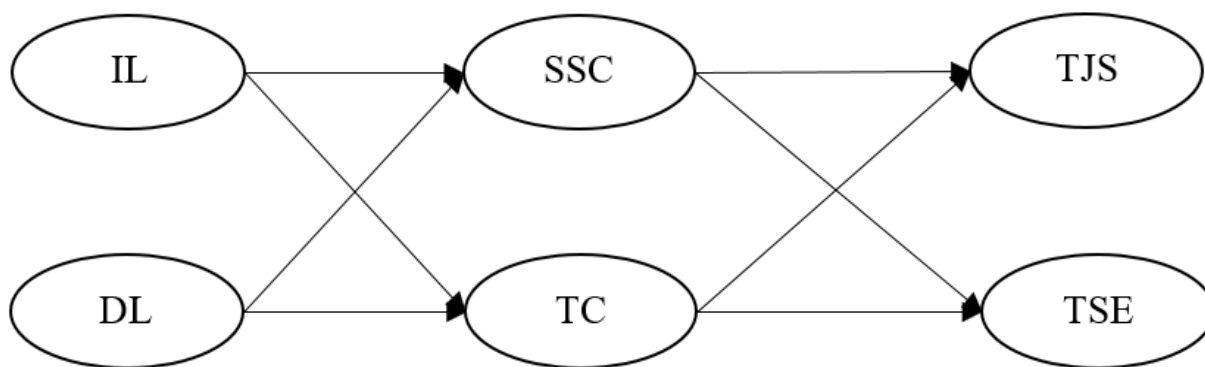


Figure 1.
Research model.

3. Methodology

3.1. Research Design

The current study used the modified approach from the previous study [9]. The examined variables remain the same: two *Kyai* leadership models that might be associated with teacher self-efficacy and job satisfaction, while considering the mediation effect of supportive school culture and teacher collaboration. However, the difference is that the object of the current study is *IBS*, not an ordinary school. Next, we used primary data from distributing questionnaires to *IBS*.

We constructed online questionnaires and distributed them to *IBS* in the west Java province of Indonesia. After receiving the respondents' questionnaires, the author reviews them to ensure they are valid and analyzed in the next step.

3.2. Research Population

The research population consists of IBS teachers from West Java Province. We selected the west Java province of Indonesia because it has the highest number of IBS students nationwide [38]. We used a purposive sampling strategy and surveyed teachers on IBS in the West Java Province of Indonesia. Of the 101 returned questionnaires, 85 were valid and processed further using SEM-PLS method. These samples come from 13 Islamic Boarding Schools including Al FadluKaliwungu, Al Islah, Ar-Rasyid Bani Suhwiyah, AssalafiyahUlumul Qur'an, AssalamKebondanas, Asshiddiqiyah 3 Karawang, Bolon, DaarullfdaBinong, Darussalam Kunir, IbnuHafidz, KHAS Kempek, Nurul Anwar Mubtadiin, and Ulumul Qur'an.

3.3. Instrument

The instrument used in questionnaires was adapted from Liu, et al. [9]. Adapting a research instrument from one study to another, particularly across cultural or linguistic boundaries, requires meticulous attention to ensure the integrity and validity of the instrument in the new context. Liu's research provides a framework for this adaptation process, emphasizing the importance of maintaining the instrument's core concepts while making necessary modifications for cultural relevance and comprehension. The process involves a series of steps, including thorough translations and expert committee reviews. This approach ensures that the adapted instrument accurately captures the data it is intended to measure, reflecting both the original instrument's intent and the nuances of the new setting. The final instruments used in this study are as follows:

- Instructional leadership (IL)
 - My kyai works with teachers to solve classroom discipline problems.
 - My kyai observes classroom teaching.
 - My kyai takes action to support collaboration among teachers in developing new teaching practices.
 - My kyai takes action to ensure that teachers take responsibility for improving their teaching skills.
 - My kyai takes action to ensure that teachers feel responsible for their students' learning outcomes.
 - My kyai checks for errors in IBS administrative procedures.
 - My kyai cooperates with kyais from other IBS.
- Distributed Leadership (DL)
 - This IBS provides staff with opportunities to actively participate in IBS decisions.
 - This IBS provides opportunities for Santri to actively participate in IBS decisions.
 - This IBS foster a culture of shared responsibility for IBS problems.
- Efficacy in Classroom Management (TSE1)
 - I was able to organize the class.
 - I can control disruptive behavior in the classroom.
 - I explain what kind of student behavior I expect.
 - I ask students to follow the class rules.
 - I can calm students who are disruptive or noisy.
- Efficacy in giving instructions (TSE2)
 - I can create useful questions to ask my students.
 - I employ variety of assessment strategies.
 - I provide alternative explanations, for example, when students are confused.
 - I implement alternative teaching strategies in my classroom.
- Efficacy in engaging students (TSE3)
 - I can convince students that they can do well on boarding school assignments.
 - I help students appreciate the learning they have acquired.
 - I encourage students who show little interest in IBS assignments.
 - I help students to think critically.
- Teacher Satisfaction with the Current Work Environment (TJS1)

- I am satisfied with my current work environment.
- If it is possible, I would like to move to another IBS.
- I am pleased working at this IBS.
- I would recommend my IBS as a wonderful place to work.
- Overall, I am satisfied with my job.
- Satisfaction with the Profession (TJS2)
 - I think the advantages of being a teacher definitely outweigh the disadvantages.
 - If I could decide again, I would still choose to work as a teacher.
 - I regret that I decided to become a teacher.
 - I wonder if it would have been better to choose another profession.
- Supportive School Culture (SSC)
 - I respect other coworkers in the IBS
 - I see that the management of the IBS holds open discussions about the problems I face.
 - I respect colleagues' ideas.
 - I share my successes.
 - I have a positive relationship with the students.
- Exchange and Coordination for Teaching (TC1)
 - I coordinate teaching.
 - I exchange teaching materials with colleagues.
 - I participate in discussions about the learning progress of specific students.
 - I collaborate with other teachers in my IBS to ensure that there are common standards in evaluation to assess student's progress.
 - I attend team meetings.
- Professional Collaboration (TC2)
 - I co-teach as a team in the same class.
 - I observe other teachers' classes.
 - I give feedback to other teachers.
 - I engage in joint activities across different classes (e.g., projects).
 - I participate in collaborative professional learning.

3.4. Validity and Reliability Tests

The author used the PLS-SEM technique to answer the hypotheses, and the constructed model comprises two elements, the outer and inner models. The outer model testing aims to investigate the discriminant, convergent validity, and reliability of the model, while the inner model testing describes the relationships between the existing variables.

In Partial Least Squares Structural Equation Modeling (PLS-SEM), validity and reliability are crucial for ensuring the quality of measurement models. Validity pertains to the degree to which the indicators accurately capture the constructs they aim to measure. This is assessed through convergent validity, where the Average Variance Extracted (AVE) should be more than 0.7, indicating that a large proportion of the variance in the indicators is accounted for by the construct. Reliability pertains to the consistency of the measurement, typically evaluated using internal consistency reliability metrics like Cronbach's alpha and composite reliability.

Composite reliability and the Cronbach's alpha coefficients should be equal to or greater than 0.7 [39-41]. Additionally, we assess discriminant validity using the cross-loading values to ensure that constructs are distinct and not overly correlated with each other.

These methodologies form the backbone of PLS-SEM's robustness, allowing researchers to confidently interpret their model's results.

4. Result

The current section presents results from questionnaires and model testing to determine data validity and answer hypotheses. PLS-SEM model consists of two models: the outer and inner models [42]; therefore, we split our findings into two parts. First, outer model evaluation describes instrumental validity; second, inner model evaluation shows hypotheses testing results.

4.1. Outer Model Evaluation

To evaluate the reflective outer model fit to test the current study's PLS-SEM outer model. Discriminant and Convergent validity tests are used to determine the model's validity. Table 1 visualizes the results of the discriminant validity test.

Table 1.
Discriminant validity test results.

Indicators	IL	DL	SSC	TC	TJS	TSE	Type (As defined)	SE	P value
IL1	(0.574)	0.202	-0.058	-0.164	0.129	0.219	Reflective	0.092	<0.001
IL2	(0.848)	-0.045	0.055	0.168	-0.242	-0.007	Reflective	0.084	<0.001
IL3	(0.906)	-0.063	-0.107	0.070	-0.054	-0.05	Reflective	0.083	<0.001
IL4	(0.825)	-0.196	-0.005	0.269	0.087	-0.178	Reflective	0.085	<0.001
IL5	(0.829)	-0.305	-0.03	-0.055	-0.017	0.052	Reflective	0.085	<0.001
IL6	(0.831)	0.226	0.041	-0.113	-0.115	0.036	Reflective	0.085	<0.001
IL7	(0.718)	0.287	0.108	-0.271	0.304	0.006	Reflective	0.088	<0.001
DL1	0.111	(0.854)	-0.266	-0.063	0.124	0.16	Reflective	0.084	<0.001
DL2	-0.079	(0.860)	-0.010	0.078	0.120	-0.273	Reflective	0.084	<0.001
DL3	-0.034	(0.799)	0.294	-0.016	-0.261	0.123	Reflective	0.086	<0.001
SSC1	0.109	-0.02	(0.754)	0.431	-0.214	-0.260	Reflective	0.087	<0.001
SSC2	-0.403	0.272	(0.746)	-0.228	0.108	-0.175	Reflective	0.087	<0.001
SSC3	0.118	-0.02	(0.842)	0.139	-0.192	-0.067	Reflective	0.085	<0.001
SSC4	0.181	-0.259	(0.657)	-0.415	0.368	0.582	Reflective	0.089	<0.001
TC1	0.32	-0.128	0.049	(0.870)	0.008	0.100	Reflective	0.084	<0.001
TC2	-0.32	0.128	-0.049	(0.870)	-0.008	-0.100	Reflective	0.084	<0.001
TJS1	0.142	-0.03	0.116	0.31	(0.879)	-0.104	Reflective	0.084	<0.001
TJS2	-0.142	0.03	-0.116	-0.31	(0.879)	0.104	Reflective	0.084	<0.001
TSE1	0.131	-0.114	-0.055	-0.049	0.000	(0.892)	Reflective	0.083	<0.001
TSE2	-0.007	0.048	-0.155	0.281	-0.12	(0.926)	Reflective	0.083	<0.001
TSE3	-0.127	0.066	0.22	-0.248	0.126	(0.871)	Reflective	0.084	<0.001

Note: IL: Instructional leadership.
DL: Distributed leadership.
SSC: Supportive school culture.
TC: Teacher cooperation.
TJS: Teacher's job satisfaction.
TSE: Teacher's self efficacy.

Based on the results, all latent variables are valid since all cross-loading values are less than the loading factors. Next, we calculate the average variant extract (AVE) from each variable and analyze it. Table 2 visualizes the results.

Table 2.
Result of convergent validity test.

Variable	IL	DL	SSC	TC	TJS	TSE
IL	(0.797)	0.568	0.422	0.381	0.448	0.114
DL	0.568	(0.838)	0.368	0.367	0.34	0.252
SSC	0.422	0.368	(0.752)	0.68	0.551	0.562
TC	0.381	0.367	0.68	(0.870)	0.593	0.648
TJS	0.448	0.34	0.551	0.593	(0.879)	0.419
TSE	0.114	0.252	0.562	0.648	0.419	(0.897)

Note: IL: Instructional leadership.
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The results show that the model has met the convergent validity criteria, which is AVE > 0.7; and all composite reliability is over 0.7, as shown in Table 3; thus, the outer model evaluation is concluded. After that, we calculate the R-squared value of the model to observe the influence between variables.

Table 3.
Latent variables coefficients.

Coefficient	IL	DL	SSC	TC	TJS	TSE
R-squared	-	-	0.21	0.194	0.404	0.467
Adj. R-squared	-	-	0.19	0.174	0.39	0.454
Composite reliability.	0.923	0.876	0.838	0.862	0.871	0.925
Cronbach's alpha	0.9	0.788	0.741	0.68	0.705	0.878
Average Variance Extracted.	0.635	0.702	0.566	0.757	0.772	0.804
Full Collinearity Variance Inflation Factor.	1.841	1.566	2.201	2.641	1.767	1.972
Q-squared	-	-	0.22	0.204	0.407	0.469
Min	-4.256	-3.162	-2.381	-2.095	-2.935	-2.393
Max	0.736	0.82	1.227	1.727	1.292	1.116
Median	0.412	0.133	0.118	0.021	0.089	0.122
Mode	0.736	0.82	1.227	1.727	1.292	1.116
Skewness	-1.897	-1.262	-0.496	-0.042	-0.567	-0.577
Exc. kurtosis	4.004	0.962	-0.597	-0.742	-0.428	-0.635
Unimodal-RS	Yes	Yes	Yes	Yes	Yes	Yes
Unimodal-KMV	Yes	Yes	Yes	Yes	Yes	Yes
Normal-JB	No	No	Yes	Yes	Yes	No
Normal-RJB	No	No	Yes	Yes	Yes	Yes
Histogram	View	View	View	View	View	View

Note: RS: Rohatgi- Székely.
KMV: Klaassen-Mokveld-van Es=.

Table 3 describes the coefficient. The strengths of the relationships in the model shown by R-squared values are as follows: Supportive School Culture (21%), Teacher Collaboration (19.4%), Teacher Job Satisfaction (40.4%), and Teacher Self-Efficacy (46.7%). We can infer that both leadership styles are highly

associated with teachers' job satisfaction and self-efficacy. This indicates that using both leadership styles may affect the increase in teachers' job satisfaction and self-efficacy.

4.2. Inner Model Testing

We conduct the inner model testing to evaluate the hypotheses in the current study. We conclude the test by visualizing the result in Figure 2.

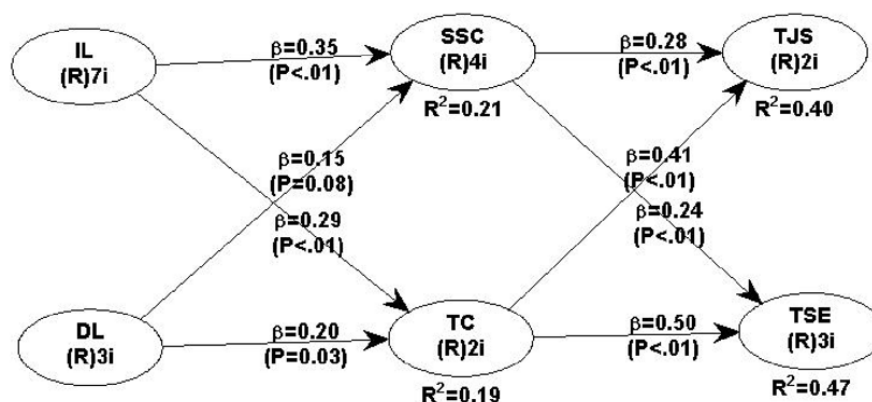


Figure 2.
Hypotheses testing results.

The results show that all hypotheses are accepted, except for one, which is H_2 . This was indicated by the p -value, with the value of 0.08 and does not meet the required criteria to be considered significant, which is p -value < 0.05. As for the path coefficients in the model, they are shown in Table 4.

Table 4.
Models' path coefficients.

Variable	IL	DL	SSC	TC
SSC	0.349	0.149	-	-
TC	0.291	0.197	-	-
TJS	-	-	0.28	0.415
TSE	-	-	0.243	0.499

Below are the listed hypotheses results and their path coefficients,

- Instructional Leadership (IL) significantly influences Supportive School Culture (SSC) with path coefficient of 0,349.
- Instructional Leadership (IL) significantly influences Teacher Collaboration (TC) with path coefficient of 0,291.
- Distributed Leadership does not influence Supportive School Culture (SSC).
- Distributed Leadership (DL) significantly influences Teacher Collaboration (TC) with a path coefficient of 0,197.
- Supportive School Culture (SSC) significantly influences Teacher Job Satisfaction (TJS) with a path coefficient of 0,280.
- Supportive School Culture (SSC) significantly influences Teacher Self Efficacy (TSE) with a path coefficient of 0,243.
- Teacher Collaboration (TC) significantly influences Teacher Job Satisfaction (TJS) with a path coefficient of 0,415.

- Teacher Collaboration (TC) significantly influences Teacher Self-Efficacy (TSE) with a path coefficient of 0,499.

The result shows that variables in the model affect one another positively; meaning an increase in one variable impacts the increase in the other construct.

5. Discussion

The current section serves as an explanation and discussion material regarding the hypotheses test results. First, we addressed the accepted hypotheses and derived their meaning. Next, we discuss the rejected hypotheses and finally conclude the current study's findings.

The model shows that Instructional Leadership (IL) has a different strength of influence on Supportive School Culture (SSC) and Teacher Collaboration (TC); the coefficient path for SSC, is greater meaning IL has greater influence on SSC. Compared with Distributed Leadership (DL) the value favored IL more. This indicates that, in terms of leadership, the IL stands out more than DL in creating a sophisticated school culture. Therefore, *IBS* may need to consider the frequent use of instructional leadership. This finding supports the result of the previous study, where instructional leadership was used to support school improvement [20].

The factor that greatly affects teachers' job satisfaction (TJS) and self-efficacy (TSE) is teacher collaboration (TC). It shows that teachers in *IBS* favor the school environment, where cooperation and collaboration can flourish. The results support the previous study, where teachers communicate and coordinate to align their instructional practices together [28]. Since some teachers are better than others in certain subjects, collaboration is needed through knowledge-sharing between teachers or discussing teaching methods to enhance students' learning processes and increase their gain. On the other hand, despite the lower SSC path coefficient value, it is still important for *IBS* to maintain a school environment where academicians respect one another.

The rejected hypotheses show that there is no significant influence in *IBS* between the practices of DL towards SSC. This result contradicts the findings of Liu, et al. [9]. One of the explanations is due to the nature of the teaching profession. Teaching is an individual and independent profession [43]. The nature of the profession and the slow development of culture in the field of education can be one explanation why DL has no effect on SSC [44, 45]. Another explanation for this result is due to cultural variations and implementation challenges [11, 46]. Culture has an important role in shaping leadership. Different cultures will have values, norms, and expectations regarding leadership styles and decision-making processes. Islamic boarding schools have a charismatic leader who is at the center of all aspects of the learning process, namely Kyai. The culture in the *IBS*, which is centered on the Kyai, makes the implementation of distributed leadership a challenge. Distributed leadership with a hierarchical organizational structure such as *IBS*, which also has a strong dependence on command and control-based leadership, is one explanation why DL has no effect on SSC.

Overall, as expected, the current study results highlight the greater value of IL implemented in the *IBS*. Instructional leadership is the cornerstone of educational excellence, serving as a catalyst for the success of schools. This dynamic form of leadership transcends the bounds of conventional administrative tasks, delving into the creation of an environment where continuous growth and development are not just encouraged but ingrained in the school's ethos. Administrators and educators, united in their mission, harness the power of instructional leadership to elevate the quality of education and support provided to students. It guides a collaborative culture, actively pursuing innovation in teaching methods.

At the heart of effective instructional leadership lies the ability to inspire and motivate educators. School leaders who embrace this approach set clear, achievable goals, offer constructive feedback, and champion professional development. This empowers teachers to not only excel in their current roles, but also to evolve as educators. For instance, enhancing Asatidz's performance as a teacher hinges on the guidance provided by Kyai. By encouraging thorough collaboration among Asatidz, Kyai can significantly impact their job satisfaction and self-efficacy. Such collaboration is a testament to the symbiotic

relationship between leadership and teaching staff, where mutual support leads to shared success and fulfillment in their educational journey.

6. Conclusions

The study emphasizes the significance of IBS as a research topic. The result shed light on the dynamic relationships between leadership styles, school culture, and teachers' job satisfaction and self-efficacy. Notably, it demonstrates that instructional leadership positively influences job satisfaction and self-efficacy, either through school culture or the teacher's collaboration. However, the results showed different results regarding distributed leadership. Even though teachers efficacy has mediating effect, on the other hand, school culture does not serve as a mediating factor for the relationship between distributed leadership and teacher's job satisfaction and self-efficacy. Additionally, the study suggests that teacher collaboration and school culture make only marginal contributions to the overall model.

7. Recommendations and Limitations

The current study improves the knowledge and understanding regarding studies about *IBS*, especially those involving teachers' job satisfaction and self-efficacy. As for managerial implications, the *Kyai* in *IBS* should be considerate in building supportive school culture and encouraging *Asatidz* to collaborate in their teachings; both factors proved to have a strong association with *Asatidz*'s job satisfaction and self-efficacy as a teacher.

The current study's model, while providing valuable insights into the leadership styles within the *IBS* population, is limited by its sample size and regional scope. Future studies should enhance the current study's model by collecting data from a larger sample of the *IBS* population in other regions at the national level. Thus, a comparison can be made to observe whether a specific region has suitable leadership styles and improve the generalizability of the findings. A broader dataset, encompassing various regions at the national level, would allow for a more comprehensive analysis of the prevalence and effectiveness of different leadership styles across diverse socio-economic and cultural backgrounds. This expansion is crucial for identifying region-specific trends and tailoring leadership development programs accordingly.

Funding:

This research is supported by the Telkom University (Grant number: 172/LIT06/PPM-LIT/2024).

Institutional Review Board Statement:

The Ethical Committee of the STAI Darussalam Kunir, Indonesia has granted approval for this study on 7 July 2023 (Ref. No. 146.1/STAI-DAKU/S.Ket/VII/2023).

Transparency:

The authors confirm that the manuscript is an honest, accurate and transparent account of the study that no vital features of the study have been omitted and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Competing Interests:

The authors declare that they have no competing interests.

Authors' Contributions:

All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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