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RESEARCH ARTICLE

Relationship between Instructional Leadership and Safe Learning Environments on the Dynamic Model of Educational Effectiveness

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ABSTRACT

This study aimed to examine the relationship between instructional leadership and a safe learning environment on school effectiveness, within the Dynamic Model of Educational Effectiveness. This research adopted a quantitative approach and collected data through surveys distributed to school administrators and teachers. The study employed correlational and regression analyses to investigate the relationship between instructional leadership, safe learning environments, and school effectiveness. The finding revealed complex relationship between instructional leadership, learning environment safety, and school effectiveness. Vision and mission setting, curriculum planning, professional development, and feedback and evaluation were found to have a negative impact on school effectiveness, resource management had a significant positive effect. Although factors like emotional and physical safety, bullying prevention, and emergency preparedness are crucial for a positive school climate, their direct impact on school effectiveness was not significant. Supportive infrastructure, though important, also showed a negative impact on school effectiveness, suggesting that the quality and application of infrastructure matter more than its mere presence. In conclusion, the research highlights the complexity of the educational system and the need for a comprehensive approach to leadership and environment management, offering valuable insights for stakeholders aiming to improve school effectiveness in a changing educational landscape.

INTRODUCTION

In contemporary educational research, educational effectiveness is seen as a key measure for evaluating the quality of education, focusing on how well educational systems, teaching methods, and practices perform (Scheerens, 2016; Arar & Nasra, 2020). In the context of a complex and evolving educational landscape, this field highlights the importance of systematically evaluating how effectively schools and their teaching methods achieve intended learning outcomes (Marcus & Zambre, 2019). The study of educational effectiveness is vital for improving education, focusing on refining teaching methods and environments to better prepare students for future challenges (Rasmitadila et al., 2020). Instructional leadership and safe learning environments are central to this effort.

Instructional leadership is a fundamental concept in education, focusing on the roles and responsibilities of school leaders in guiding and shaping teaching practices (Ng, 2019; Bush et al., 2021; Shava et al., 2021). Extensive academic research has highlighted its crucial role in enhancing educational effectiveness (Manaseh, 2016). Schools with effective instructional leadership typically achieve tend to perform better (Khan et al., 2020; Karadag, 2020). Research consistently shows that effective instructional leadership is linked to improved student achievement, increased teacher motivation, and overall school success (Kiptum, 2018; Mora-Ruano et al., 2021). One of the Wallace Foundation's research highlights that leadership is the second most important factor influencing student learning, after direct classroom instruction (Grissom et al., 2021), which emphasizes the

critical role of instructional leaders in improving students' academic success. Likewise, the relationship between instructional leadership and other aspects of school management, such as curriculum design, teacher professional development, and student assessment, highlights its significance (Mestry & Govindasamy, 2021; Ma & Marion, 2021). As educational environments continue to evolve, instructional leaders becomes even more critical in adapting to educational changes and ensuring the effective teaching and learning.

Moreover, in addition to instructional leadership, ensuring a safe learning environment is essential for educational outcomes. A safe learning environment not refers to merely a physical space without threats but an atmosphere where students experience emotional, psychological, and social security (Charlton et al., 2021). A safe learning environment is defined by a strong sense of community, where students feel a sense of belonging, can express their opinions without fear of retaliation, and are protected from physical and emotional harm (Lateef, 2020). Research by Kibriya and Jones (2021) highlights the importance of safe learning environments. Their findings indicate that students who feel their learning spaces are safe show better academic performance, higher levels of well-being, and increased motivation to engage in the learning process. Further, the relationship between a safe learning environment and teacher-student relationships, peer interactions, and school policies, further emphasizes its importance (Gablinske, 2014). Therefore, teachers and stakeholders must prioritize student safety as the education system to adapt to societal changes.

Numerous models have been proposed in educational research to explain educational success. Among them, Creemers and Kyriakides (2007) provided dynamic model of educational effectiveness, which offers a more comprehensive perspective on educational research. The components in this model are interrelated, and their collective impact is greater than the sum of their individual effects (Groff, 2013, Cavana & Forgie, 2018). This dynamic model is crucial for understanding the role of instructional leadership and the safe learning environments (Şenol & Lesinger, 2018). And this framework connects effective instructional leadership to a safe learning environment, which is essential for successful instructional practices (Ross & Cozzens, 2016; Bellibas & Liu, 2018). Thus, the dynamic model of educational effectiveness provides a new perspective for understanding the educational system. In contemporary education, the relationship between instructional leadership and safe learning environments has become increasingly significant. This relationship is crucial to face the challenges of 21st-century education with digital transformation (Manaseh, 2016). Leaders have to shift from traditional administrative roles to more visionable and adaptable (Naidoo & Mestry, 2019). I

Additionally, the rise in reports of bullying, online threats, and mental health challenges among students highlights the urgent need to create safe learning environments (Wu et al., 2016). Schools can no longer focus only on academics; they must also provide a safe environment where students feel secure both physically and emotionally (Caines, 2021). Ensuring students' emotional and psychological safety is as important as fostering their academic growth. These challenges highlights the urgent need to explore how instructional leadership can foster environments that promote both academic excellence and the safe learning environments. As schools reflect broader societal shifts, understanding the relationship between leadership and safety becomes essential (Naranasamy & Abdullah, 2019). Leaders must possess the knowledge and tools to create environments where students are protected from harm, feel a strong sense of belonging, and have their voices heard and valued (Weiner et al., 2021). Therefore, the purpose of this research is to explore the relationship between the instructional leadership and a safe learning environments and their impact on school effectiveness within the framework in dynamic model of educational effectiveness.

METHOD

This study explored the relationship between instructional leadership, safe learning environments, and the Dynamic Model of Educational Effectiveness. A total of 101 school administrators and 216 teachers participated in the online survey. Data collection adopted a digital-centric approach through popular Chinese digital and social media platforms such as WeChat, Weibo, QQ, Zhihu, Douyin, and Baidu Tieba. The survey consisted of two main sections. The first section gathered demographic information, including age, gender, title, years of experience, and student population. The second section included 24 items: ten on instructional leadership, ten on safe learning environments, and

four on school effectiveness with a five-point Likert scale ranging from "strongly disagree" to "strongly agree" .

Descriptive statistics furnished a preliminary understanding of the general perspectives of the participants. To understand the depth and strength of the relationships between the independent variables (instructional leadership and safe learning environments) and the dependent variable (school effectiveness), correlational analysis was carried out through JMP and PAST statistical software. This offered insights into how these factors related and potentially influenced one another.

Furthermore, regression analysis was utilized through SPSS software to determine the extent to which instructional leadership and the establishment of a safe and orderly learning environment could predict school effectiveness within the Dynamic Model of Educational Effectiveness. This stepwise regression helped identify the weight of each independent variable in relation to school effectiveness, thus providing a clearer image of their respective impacts.

RESULT

The study sample consisted of two groups: administrators (N = 101) and teachers (N = 216). Gender distribution showed that 33% of administrators and 27% of teachers were male, while 67% and 73%, respectively, were female. Administrators were older on average (M = 47 years, SD = 7.08) compared to teachers (M = 34 years, SD = 6.25). They also had significantly longer work experience (M = 16 years, SD = 3.55) than teachers (M = 7 years, SD = 4.13). Regarding school size, administrators typically oversaw larger schools with an average of 1132 students (SD = 293.57), whereas teachers were affiliated with schools averaging 1017 students (SD = 238.02). These demographic differences are detailed in Table 1.

Table 1: Demographic information

	Administrators N = 101		**Teachers N = 216**	
	M	**SD**	**M**	**SD**
Male	33	-	59	-
Females	68	-	157	-
Age	47	7.08	34	6.25
Year of Experience	16	3.55	7	4.13
School Size (number of students enrolled)	1132	293.57	1017	238.02

Correlation among variables under instructional leadership and safety environment

In the examination of the relationships among ten variables under instructional leadership and safety environment, Spearman's rho correlations were employed (Fig 1, 2). Notably, "Vision and Mission Setting" demonstrated significant correlations with several factors, including Curriculum Planning ($r = 0.232$, $p < 0.0001$), Professional Development ($r = 0.187$, $p = 0.001$), and Feedback and Evaluation ($r = 0.182$, $p = 0.001$). Moreover, Curriculum Planning was positively related to Professional Development ($r = 0.217$, $p < 0.0001$) and Resource Management ($r = 0.196$, $p < 0.0001$). Emphasizing the role of Professional Development, it exhibited robust correlations with Feedback and Evaluation ($r = 0.317$, $p < 0.0001$) and 'Resource Management' ($r = 0.289$, $p < 0.0001$).

Feedback and Evaluation' showed strong correlations with Resource Management ($r = 0.350$, $p < 0.0001$) and Emotional Safety ($r = 0.184$, $p = 0.001$). Similarly, Resource Management was significantly associated with Physical Safety ($r = 0.273$, $p < 0.0001$) and Emotional Safety ($r = 0.217$, $p < 0.0001$). The importance of safety measures was emphasized by the correlation between Physical Safety and Emotional Safety ($r = 0.345$, $p < 0.0001$) as well as Bullying Prevention ($r = 0.168$, $p = 0.003$). Furthermore, Emotional Safety was linked to both Bullying Prevention ($r = 0.231$, $p < 0.0001$) and Emergency Preparedness ($r = 0.189$, $p = 0.001$)

The analysis revealed complex relationships among variables related to safeguarding and instructional leadership. Bullying Prevention was significantly correlated with both Emergency Preparedness ($r = 0.305$, $p < 0.0001$) and Supportive Infrastructure ($r = 0.184$, $p = 0.001$). Additionally, Emergency Preparedness showed a strong association with Supportive Infrastructure ($r = 0.362$, $p < 0.0001$), which, in turn, was linked to School Effectiveness ($r = 0.200$, $p < 0.0001$).

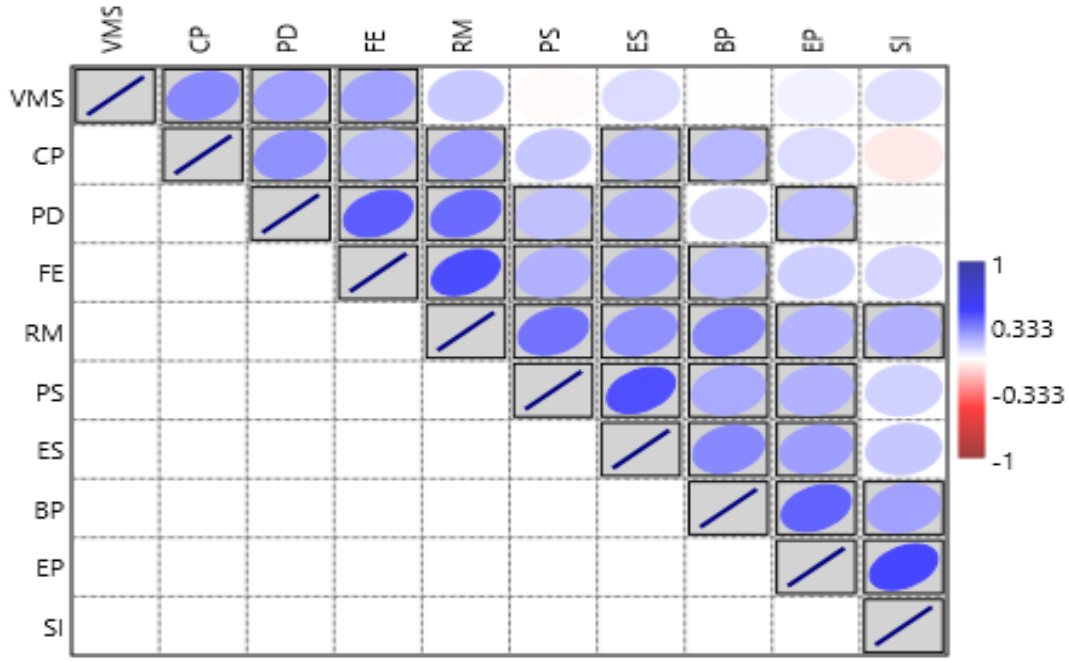

Figure 1: Correlation among ten parameters under instructional leadership and safe learning environments of school. [VMS = Vision and Mission Setting, CP = Curriculum Planning, PD = Professional Development, FE = Feedback and Evaluation, RM = Resource Management, PS = Physical Safety, ES = Emotional Safety, BP = Bullying Prevention, EP = Emergency Preparedness, SI = Supportive Infrastructure] (p<0.05 are boxed).

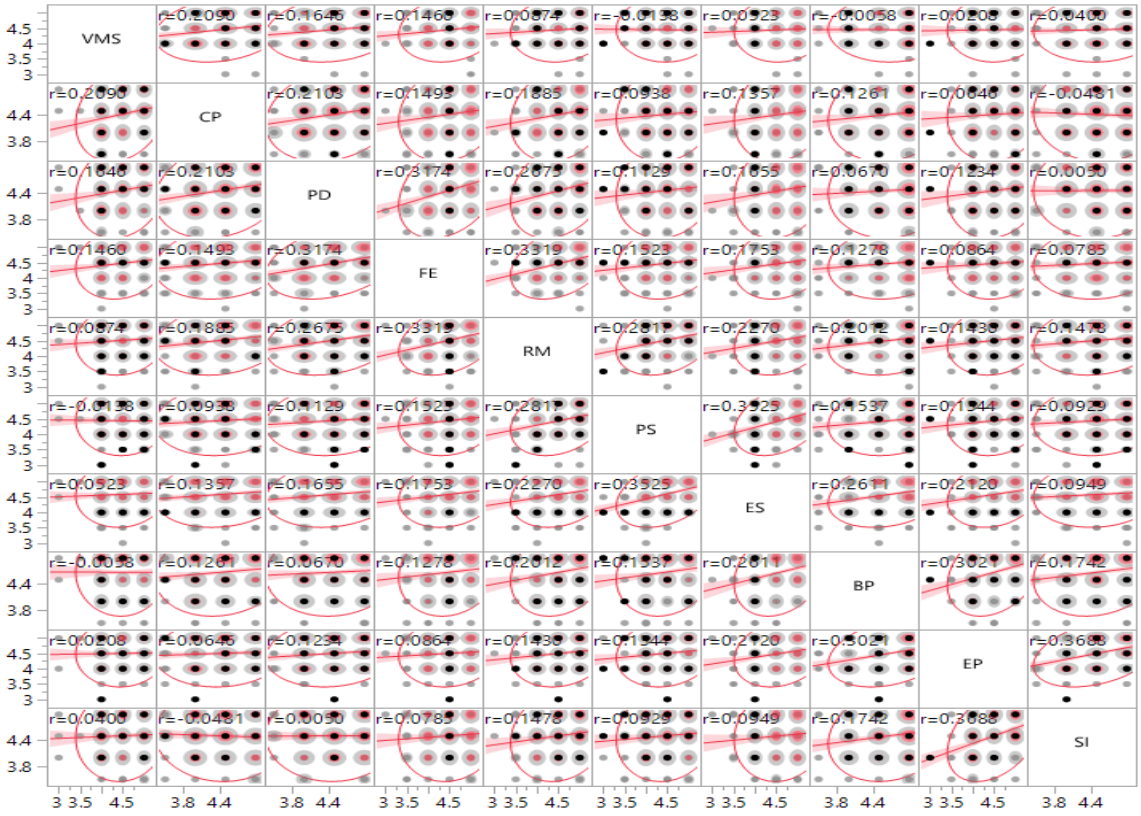

Figure 2: Scatterplot matrix among ten variables under instructional leadership and safe learning environments of school. [VMS = Vision and Mission Setting, CP = Curriculum Planning, PD = Professional Development, FE = Feedback and Evaluation, RM = Resource Management, PS = Physical Safety, ES = Emotional Safety, BP = Bullying Prevention, EP = Emergency Preparedness, SI = Supportive Infrastructure].

A Principal Component Analysis (PCA) was performed to explore the relationships among key variables related to instructional leadership and safe learning environments, as shown in Figure 3. The first and second principal components explained 24.3% and 14.2% of the total variance, respectively. Angles less than 90 degrees between vectors in the PCA plot indicate a positive correlation between the variables (Vita et al., 2016). All five variables in the instructional leadership dimension: Vision and Mission Setting (VMS), Curriculum Planning (CP), Professional Development (PD), Feedback and Evaluation (FE), and Resource Management (RM)—demonstrated strong interrelations, with angles under 90 degrees.

Similarly, in the safe learning environment category, the five variables: Physical Safety (PS), Emotional Safety (ES), Bullying Prevention (BP), Emergency Preparedness (EP), and Supportive Infrastructure (SI) showed angles less than 90 degrees relative to each other, indicating strong relationships.

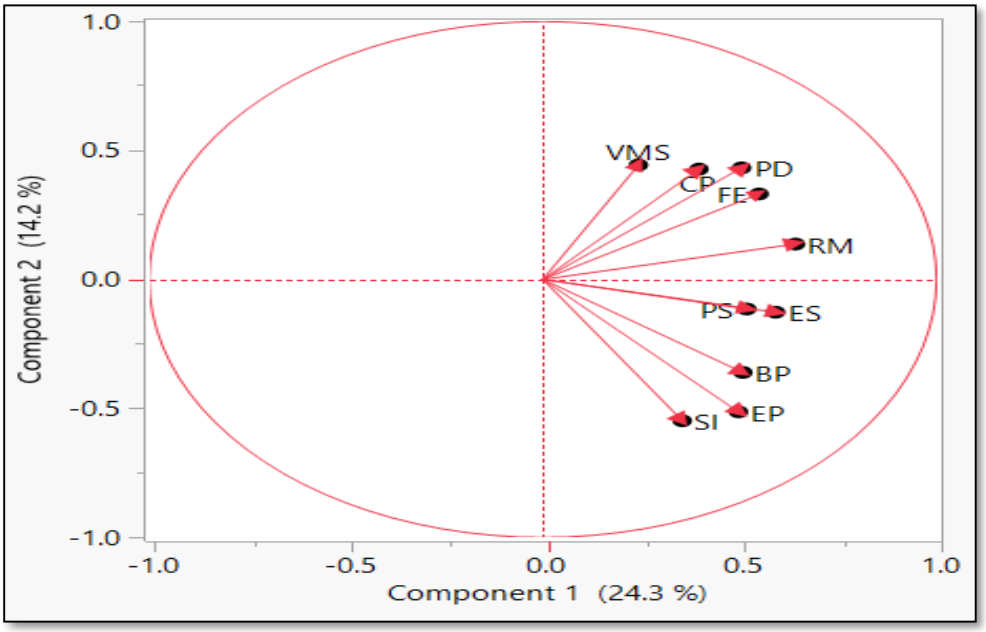

Figure 3: Ordination plot for ten variables under instructional leadership and safe learning environments of school. [VMS = Vision and Mission Setting, CP = Curriculum Planning, PD = Professional Development, FE = Feedback and Evaluation, RM = Resource Management, PS = Physical Safety, ES = Emotional Safety, BP = Bullying Prevention, EP = Emergency Preparedness, SI = Supportive Infrastructure].

Ordinal regression analysis among variables under instructional leadership and safety environment

In addition to Spearman's Correlation, an ordinal regression analysis was conducted to assess how instructional leadership and safe learning environments predict school effectiveness within the Dynamic Model of Educational Effectiveness. The model fit, shown in Table 2, is essential for ensuring accurate interpretations. Notably, the comparison of the -2 Log Likelihood values between the "Intercept Only" model and the "Final" model reveals a significant reduction, from 1004.760 in the intercept-only model to 925.672 in the final model.

Table 2: Presentation of model fitting information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1004.760			
Final	925.672	79.087	36	0.000

Moreover, the Goodness-of-Fit test is vital in the construction of statistical models, which is depicted in Table 3. In evaluating the goodness-of-fit, the Pearson chi-square was 1604.885 with a significance value (Sig.) of .035. The deviance chi-square was 920.127 with a non-significant p-value of 1.000. The non-significant deviance suggests that the model's assumptions are accepted.

Table 3: Result of goodness-of-fit test in this research

Test Method	Chi-Square	df	Sig.
Pearson	1604.885	1504	0.035
Deviance	920.127	1504	1

In evaluating the fitted regression model, the coefficient of determination (R^2) is commonly used in linear regression as a standard metric. However, for ordinal dependent variables, the conventional R^2 may not get all the complexities. Therefore, alternative metrics such as the Cox and Snell R^2, Nagelkerke R^2, and McFadden R^2 are considered (Table 3). The Cox and Snell R^2, at .223, measures the variation in log-likelihoods across models but does not reach a theoretical maximum of 1, even in an ideal model. To address this, the Nagelkerke R^2, an enhancement of the Cox and Snell metric, was used, producing a value of .232 and designed to have a potential maximum of 1. Additionally, the McFadden R^2, with a value of .078, reflects the relative improvement in the log-likelihood of the fully specified model over the intercept-only (null) model.

Table 4: Techniques employed for assessing the model

Techniques	Value
Cox and Snell	0.223
Nagelkerke	0.232
McFadden	0.078

In the ordinal regression analysis, the parameter estimates provided insight into the effects of instructional leadership and safety factors on school effectiveness (Table 5). For instructional leadership: Vision and Mission Setting (VMS) had negligible effects on school effectiveness, with estimates ranging from -0.318 to 1.228, none of which were statistically significant. Curriculum Planning (CP) showed negative estimates between -1.020 and -0.357, with significance at the 3.50 level (p = 0.050). Professional Development (PD) also had negative impact ranging from -1.018 to 0.012, with significance at the 4.00 level (p = 0.053). Feedback and Evaluation (FE) showed estimates close to zero with no significant p-values, suggesting a negligible relationship with school effectiveness. Finally, Resource Management (RM) had estimates ranging from -0.322 to 1.262, with a significant positive relationship at the 3.50 level (p = 0.024).

In the analysis of safe learning environment variables, Physical Safety (PS) showed negative estimates ranging from -2.698 to -0.341, with significant relationships at the 3.00 (p = 0.020) and 3.50 levels (p = 0.017). Emotional Safety (ES) had a mix of estimates from 1.010 to -0.460, but none were statistically significant. Bullying Prevention (BP) showed estimates between 0.272 and -0.551, also lacking significance. Emergency Preparedness (EP) produced a wide range of estimates from -22.218 to -0.118, with no significant findings. Finally, Supportive Infrastructure (SI) showed a significant negative relationship at the 4.00 level (p = 0.000), with estimates ranging from 0.310 to -1.233.

Table 5: The final result of the parameter estimates for the comprehensive model

Parameter	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold							
[School_Effectiveness = 3.75]	-7.329	0.818	80.187	1	0.000	-8.933	-5.725
[School_Effectiveness = 4.00]	-3.905	0.429	82.994	1	0.000	-4.746	-3.065

[School_Effectiveness = 4.25]	-2.746	0.401	46.926	1	0.000	-3.532	-1.960
[School_Effectiveness = 4.50]	-1.594	0.381	17.488	1	0.000	-2.341	-0.847
[School_Effectiveness = 4.75]	0.058	0.374	0.024	1	0.877	-0.675	0.791
Location							
[Vission_and_Mission_Setting=3.00]	-0.318	1.065	0.089	1	0.765	-2.406	1.770
[Vission_and_Mission_Setting=3.50]	1.228	1.879	0.427	1	0.513	-2.455	4.910
[Vission_and_Mission_Setting=4.00]	0.002	0.281	0.000	1	0.994	-0.548	0.552
[Vission_and_Mission_Setting=4.50]	-0.281	0.269	1.090	1	0.296	-0.808	0.246
[Vission_and_Mission_Setting=5.00]	0			0			
[Curriculum_Planning=3.50]	-1.020	0.520	3.851	1	0.050	-2.039	-0.001
[Curriculum_Planning=4.00]	-0.357	0.297	1.445	1	0.229	-0.938	0.225
[Curriculum_Planning=4.50]	-0.478	0.275	3.016	1	0.082	-1.017	0.061
[Curriculum_Planning=5.00]	0			0			
[Professional_Development=3.50]	-1.018	0.558	3.323	1	0.068	-2.112	0.076
[Professional_Development=4.00]	-0.568	0.294	3.743	1	0.053	-1.144	0.007
[Professional_Development=4.50]	0.012	0.272	0.002	1	0.965	-0.522	0.546
[Professional_Development=5.00]	0			0			
[Feedback_and_Evaluation=3.00]	20.612	0.000		1		20.612	20.612
[Feedback_and_Evaluation=3.50]	0.585	0.511	1.313	1	0.252	-0.416	1.586
[Feedback_and_Evaluation=4.00]	0.091	0.293	0.097	1	0.756	-0.483	0.665

[Feedback_and_Evaluation=4.50]	-0.082	0.274	0.091	1	0.763	-0.619	0.454
[Feedback_and_Evaluation=5.00]	0			0			
[Resource_Management=3.00]	-0.322	1.847	0.030	1	0.862	-3.942	3.298
[Resource_Management=3.50]	1.262	0.559	5.100	1	0.024	0.167	2.357
[Resource_Management=4.00]	-0.211	0.314	0.450	1	0.502	-0.826	0.404
[Resource_Management=4.50]	-0.324	0.268	1.464	1	0.226	-0.848	0.201
[Resource_Management=5.00]	0			0			
[Physical_Safety=3.00]	-2.698	1.155	5.453	1	0.020	-4.962	-0.433
[Physical_Safety=3.50]	-1.402	0.587	5.697	1	0.017	-2.553	-0.251
[Physical_Safety=4.00]	-0.341	0.286	1.422	1	0.233	-0.901	0.219
[Physical_Safety=4.50]	-0.588	0.268	4.834	1	0.028	-1.113	-0.064
[Physical_Safety=5.00]	0			0			
[Emotional_Safety=3.00]	1.010	1.891	0.285	1	0.593	-2.697	4.717
[Emotional_Safety=3.50]	0.543	0.625	0.756	1	0.385	-0.681	1.767
[Emotional_Safety=4.00]	-0.460	0.325	2.004	1	0.157	-1.097	0.177
[Emotional_Safety=4.50]	-0.126	0.255	0.243	1	0.622	-0.626	0.374
[Emotional_Safety=5.00]	0			0			
[Bullying_Prevention=3.50]	0.272	0.742	0.135	1	0.714	-1.183	1.727
[Bullying_Prevention=4.00]	-0.551	0.326	2.856	1	0.091	-1.189	0.088
[Bullying_Prevention=4.50]	0.009	0.266	0.001	1	0.973	-0.513	0.531

[Bullying_Prevention=5.00]	0			0			
[Emergency_Preparedness=3.00]	-22.218	7748.093	0.000	1	0.998	-15208.200	15163.765
[Emergency_Preparedness=3.50]	-1.514	0.862	3.084	1	0.079	-3.204	0.176
[Emergency_Preparedness=4.00]	-0.118	0.281	0.176	1	0.675	-0.670	0.434
[Emergency_Preparedness=4.50]	-0.474	0.271	3.051	1	0.081	-1.005	0.058
[Emergency_Preparedness=5.00]	0			0			
[Supportive_Infrastructure=3.50]	0.310	0.597	0.270	1	0.603	-0.860	1.480
[Supportive_Infrastructure=4.00]	-1.233	0.311	15.774	1	0.000	-1.842	-0.625
[Supportive_Infrastructure=4.50]	-0.361	0.259	1.942	1	0.163	-0.869	0.147
[Supportive_Infrastructure=5.00]	0			0			

Furthermore, the Test of Parallel Lines confirmed the assumption of proportional odds with a Chi-Square value of 144.881 at 144 degrees of freedom ($p = 0.464$), indicating that the logistic regression models for each level of the dependent variable have proportional odds. Additionally, the p-value of 0.464 in the Test of Parallel Lines suggested that the assumption of proportional odds is satisfied, validating the use of ordinal logistic regression in this analysis (Table 6).

Table 6: Test of parallel lines for this ordinal regression model

Model	**-2 Log Likelihood**	**Chi-Square**	**df**	**Sig.**
Null Hypothesis	925.672			
General	780.791	144.881	144	0.464

DISCUSSION

The findings of this research highlight the complex relationship between various aspects of instructional leadership and safe learning environments, and their impact on school effectiveness. The relationship between different elements contributed to the overall goal of improving school effectiveness. In the field of instructional leadership, research emphasizes the crucial role of setting vision and mission, which serves as a foundation, impacting curriculum planning, professional development, and feedback and evaluation.

Instructional leadership plays a critical role in shaping school outcomes by influencing curriculum decisions, professional development, and feedback mechanisms. As Bentuzal (2017) highlighted, a principal's clear vision and supervision guide curriculum planning to align with the school's aspirations and standards. Similarly, MacLeod (2020) demonstrated the pivotal impact of principal leadership on facilitating effective teacher professional development. Feedback and evaluation are also integral to instructional leadership, as Akins et al. (2019) emphasized the importance of monitoring student growth and evaluating teachers' performance as indicators of leadership efficacy.

Ingersoll et al. (2018) identified essential components of strong instructional leadership, including meaningful teacher feedback, consistent evaluations, data-driven instruction improvement, and high expectations. Collectively, these aspects assumed instructional leadership as a driving force in achieving a school's educational objectives.

The findings of this research emphasize the critical role of curriculum planning, which is closely tied to professional development and resource management. The result were in line with Alsubaie (2016), who suggested effective curriculum planning ensures that educational content is relevant, comprehensive, and adaptable to evolving educational needs. Its impact is further enhanced when educators participate in continuous professional development.

Curriculum planning through the co-design model directly supports teacher professional development by encouraging collaboration in shaping instructional content, ensuring their skills remain relevant for 21st-century learning (Kelly et al., 2019). This process helps create well-planned and effectively executed curricula, improving student outcomes. Integrating professional development into curriculum planning also prepares teachers to handle curriculum complexities (Ciarocco et al., 2016). With a deeper understanding of the curriculum, teachers can design more engaging and meaningful learning experiences, boosting student engagement and achievement.

Resource management is equally important. Adequate resources, both material and intangible, are essential for successful curriculum implementation (Kigwilu et al., 2017). When resources are managed effectively and aligned with curriculum goals, teachers are better equipped to deliver high-quality education (Nguyen, 2023). This alignment ensures resources are used efficiently to support educational objectives.

In summary, the relationship between curriculum planning, professional development, and resource management creates an environment of continuous improvement. This integration enhances education quality, promotes excellence, and contributes to school effectiveness and student success.

Professional development is not a single effort but influences feedback, evaluation, and resource management. It helps teachers improve their skills, adapt to feedback, and navigate evaluations (Shagrir, 2012). Seniority further enhances their professional growth and performance. Effective professional development also ensures efficient resource use, aligning with school goals and teachers' needs to improve student learning and school effectiveness (Obedgiu, 2017; Holloway, 2006; Postholm, 2018). When integrated with feedback, evaluation, and resource management, professional development creates a continuous cycle of improvement, boosting overall school performance.The study also highlights the importance of educational safety. Emotional and physical safety are interconnected, emphasizing the necessity for a holistic safety approach that addresses students' psychological and physical well-being. Physical safety in schools includes secure infrastructure, safe transportation, and emergency preparedness and assures students of their safeguarded physical well-being, which is a basic prerequisite for any learning environment (Gatua, 2015; Mubita, 2021). However, physical safety alone is not sufficient. Promoting emotional safety in a caring, inclusive, and courteous environment helps students feel valued, understood, and safe (Lester & Cross, 2015; Lateef, 2020). The correlation between physical and emotional safety is profound because a physically safe environment can contribute to a sense of security and stability, which is conducive to emotional well-being (Fredrick et al., 2021). Schools that prioritize both physical and emotional safety tend to foster higher student engagement, lower absenteeism, and improved academic performance, as well as encourage positive relationships and collaboration, thriving school effectiveness (Côté-Lussier & Fitzpatrick, 2016; Tu, 2021). Furthermore, addressing both physical and emotional aspects is essential in creating a school environment that deters bullying and fosters a culture of respect, empathy, and inclusivity (Nickerson et al., 2021). This effective integration of physical and emotional safety in bullying prevention enhances the school climate, fostering an environment conducive to learning, well-being, and overall school effectiveness (Javornik & Klemenčič Mirazchiyski, 2023).

The study highlights a strong relationship between emergency preparedness and supportive infrastructure. The results align with Díaz-Vicario & Gairín Sallán, (2017) and Martins et al., (2019) They suggested that effective emergency plans require proper facilities, such as well-maintained buildings, clear signage, accessible exits, and reliable communication systems. Such infrastructure ensures swift responses during crises, protects the school community, and fosters a sense of security

(Tipler et al., 2018; Seiler, 2023). A safe and well-prepared school boosts morale, reduces anxiety, and creates a positive learning environment (Barrett et al., 2019). Additionally, it enhances the school's reputation, helping to attract and retain students and staff, which contributes to its overall effectiveness and success (Garver & Noguera, 2012; Reynolds et al., 2014).

The study found that feedback and evaluation may not have a strong impact on school effectiveness. This suggests that current feedback and evaluation methods may not align well with indicators of school effectiveness (Winstone et al., 2017). In contrast, resource management was found to play a crucial role in school effectiveness. It is also supported by Alami et al. (2015), indicating that better management of resources can lead to improved school outcomes .

The finding found that there is a strong relationship between instructional leadership and safe learning environments. Instructional leadership, which includes vision setting, curriculum planning, and professional development, plays a key role in creating a safe learning environment. This result align with Kutsyuruba et al. (2015). This positive correlation between instructional leadership and safe learning environments forms a virtuous cycle, enhancing the overall quality and effectiveness of the educational institution.

In this study, curriculum planning and professional development, typically seen as key elements of instructional leadership, showed a negative relationship with school effectiveness. This finding challenges traditional beliefs, suggesting that the mere presence of these initiatives is insufficient. Their impact relies on three key factors: quality, relevance, and implementation of the curriculum (Ahmadi & Lukman, 2015; Syomwene, 2018; Thinley et al., 2018; Khosa & Makuvire, 2021). An effective curriculum is crucial, with initiatives needing to be comprehensive and focused on developing tangible skills and knowledge (Wijngaards-de Meij & Merx, 2018). Additionally, the relevance of the programs is essential; they must be tailored to specific educational contexts and address current challenges (Thinley et al., 2018). Finally, successful implementation is vital, as strategic execution is needed to turn plans into meaningful improvements (Ahmadi & Lukman, 2015; Khosa & Makuvire, 2021).

The findings indicated a negative relationship between physical safety and school effectiveness. This is not in line with Sayfulloevna (2023) and Mubita (2021). Both them claimed that physical safety is not merely an additional benefit but rather a foundational necessity for effective learning and teaching . A safe and secure environment is crucial for students to focus on learning without the distraction of safety concerns . Moreover, it enables educators to concentrate on instructional activities without the burden of managing safety issues (Sinthumule, 2017). Thus, though a safe physical environment appears to be a foundational necessity for effective learning and teaching, it has no direct impact on school effectiveness. Emotional safety did not demonstrate a significant direct relationship with school effectiveness in this study. This finding suggests that emotional safety might exert its influence on school effectiveness in more indirect ways. In this regard, student engagement and teacher satisfaction may increase in a favourable emotional atmosphere (Tatiana et al., 2023; Türker & Duyar, 2023). When combined, these factors have the potential to improve the educational setting as a whole (Grey & DiLoreto, 2016). If students and teachers feel respected and supported, emotional safety may create a healthy school culture that promotes learning (Barker et al., 2023)..

This study found no impact of bullying prevention and preparedness for emergencies on school effectiveness. Thus, according to this present research, bullying prevention and preparedness for emergencies are important for the school atmosphere, but they have no direct impact on school effectiveness. This suggests that these elements are important for student safety and well-being but may not affect academic or institutional performance. However, bullying prevention, as well as emergency readiness, are vital to building a comprehensive and supportive learning environment (Widowati et al., 2021; Sainz & Martín-Moya, 2023). These factors play a fundamental role in fostering a sense of security and well-being among students and staff (Widowati et al., 2021). A safe and supportive environment, free from the threats of bullying and equipped to handle emergencies, is indispensable for students to thrive academically and for educators to perform their duties effectively (Sabia & Bass, 2017; Hebib & Žunić-Pavlović, 2018). Therefore, even if their direct influence on school effectiveness, as measured in this particular study, may be limited, their broader impact on the overall health and functionality of the school ecosystem remains significant.

The finding revealed a significant negative correlation between supportive infrastructure (SI) and school effectiveness. This result shows that the supportive infrastructure increased with a low school effectiveness, challenges conventional educational belief. It is not in line with Nepal, (2016), who suggested an increase in the quality and availability of supportive infrastructure, encompassing modern classrooms, comprehensive libraries, and advanced technological amenities, should bolster educational outcomes. This could be indicative of a potential overemphasis on infrastructural development at the expense of other critical educational aspects, such as pedagogical innovation or curriculum enrichment (Alhumaid, 2019). Alternatively, it might reflect inefficiencies in the utilization of available resources within well-equipped educational establishments (Alhumaid, 2019).

The research highlights the complex influence of instructional leadership and safe learning environments on school effectiveness. The study emphasizes the importance of a comprehensive approach to managing educational leadership and school environments. While certain aspects of leadership and safety are crucial, their quality and implementation play a key role in determining their impact on school effectiveness. This study offers valuable insights for policymakers, administrators, and educators seeking to improve school effectiveness in a dynamic educational context.

CONCLUSION

This study sheds light on the complex relationships between instructional leadership, safe learning environments, and school effectiveness. Key findings reveal the relationship among various factors. Vision and mission setting within instructional leadership were found to be foundational, influencing curriculum planning, professional development, and feedback mechanisms. Additionally, curriculum planning has positive relationship with professional development and resource management. The study also highlighted that professional development significantly impacts feedback, evaluation processes, and resource management.

However, contrary to traditional beliefs, the study revealed an unexpected negative impact of vision and mission setting, curriculum planning, professional development, and feedback mechanisms on school effectiveness. This suggests that these factors may not be core indicators to school effectiveness. On the other hand, resource management showed a positive impact on school effectiveness. Furthermore, the research also sheds light on the crucial role of safety in the educational environment. Emotional safety and physical safety were found to be closely related, and this relationship also stopped bullying and fostered a culture of respect, empathy, and inclusivity. Along with these, the study also showed a significant relationship between emergency preparedness and supportive infrastructure. This highlights the critical role that a secure environment plays in fostering an optimal learning atmosphere. Although physical safety was found to be indispensable in the educational process, it has negative impact on school effectiveness. Factors such as bullying prevention and emergency preparedness, although vital for a positive school climate, did not show a significant positive impact on school effectiveness. This suggested that their contributions to school effectiveness are not so important. Additionally, the unexpected negative impact of supportive infrastructure on school effectiveness presents a paradigm shift, challenging traditional educational beliefs. This might suggest that while infrastructure is vital, its quality, relevance, and application could not be more critical determinants of its impact on school effectiveness.

In conclusion, this research presented the complexity of the educational ecosystem. The findings stressed the need for a comprehensive approach in both instructional leadership and environment management, focusing not just on the existence but the quality and implementation of initiatives. As the educational landscape continues to evolve, these insights serve as valuable guidance for stakeholders aiming to enhance the overall effectiveness of schools.

This study provides valuable insights into the relationship between instructional leadership, safe learning environments, and school effectiveness, but several limitations should be considered. First, the reliance on Spearman's correlation and regression analysis may not capture the full complexity of the relationships between variables, potentially overlooking important interactions. Second, the negative correlations between certain aspects of instructional leadership and school effectiveness suggest that unexamined external factors may have influenced the results. Additionally, the study did

not explore the qualitative aspects of how these initiatives are implemented, which could offer a deeper understanding.

Based on the insights and limitations of this study, several directions for future research are suggested. First, future studies should employ a broader range of statistical methods to explore the complex dynamics of instructional leadership and safe learning environments in greater depth. This would help to better understand how various factors interact and affect school effectiveness. Second, the negative correlations between certain aspects of instructional leadership and school effectiveness may need qualitative research. Future studies should focus on the implementation quality, contextual factors, and the lived experiences of educators and students, potentially using a mixed-methods approach.

Additionally, expanding the scope of examined variables is important. Factors like community involvement, student engagement, and technological integration, which were not covered in this study, may significantly influence school effectiveness.

Finally, to improve the generalizability of the findings, similar studies should be conducted across diverse educational settings, cultures, and socio-economic contexts. This would provide a more comprehensive view of the global educational landscape and offer valuable insights for stakeholders in various environments.

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