DEVELOPMENT OF MOBILE APPS NEXTGEN LEADERSHIP PROGRAM TO IMPROVE MANAGERIAL COMPETENCE AND SUPERVISION OF KINDERGARTEN PRINCIPALS

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ABSTRACT

The article delves into the development of the NextGen Leadership Program for Mobile Apps. An effective principal manager must know how to encourage teamwork among teachers and other school staff to give them more agency. Encourage the participation of all education staff in a variety of activities that promote school programming and provide opportunity for education personnel to reflect on their profession. However, the conditions in the field found several problems related to the managerial and supervision abilities owned by the school principal. Pay attention to this, a solution is needed to improve the managerial competencies and supervision of the principal. One alternative that can be used is mobile apps based learning tools. The research team behind the NextGen Leadership Program hopes to use the findings to create mobile apps that are both useful and efficient. Data was analyzed using a paired sample t-test, and the methodology employed was a quasi-experiment with a one-group design that included pre- and post-tests. Results from the NextGen Leadership Program's Mobile App Research Project It can be concluded that there are significant differences in the competencies and supervision of the kindergarten principal before and after using the Mobile Apps NextGen Leadership Program, as the developed results showed a calculation of significance value of $0.000 < 0.05$.

1. INTRODUCTION

In order to educate the nation's life and form competent individuals in their domains, education is an essential tool for human resource development (Gilal et al., 2019; Sutaphan & Yuenyong, 2019). Training and growing one's knowledge, abilities, thoughts, and behavior, among other things, is known as education (Venegas, 2021). In this sense, education is frequently practiced through verbalistic teaching (Boulanger, 2019). According to Levina et al., (2017), education has a responsibility to help students become subjects who take an active role in demonstrating their strengths, creativity, independence, and professional abilities in their chosen professions (Pelt et al., 2021). This is particularly true in preparing them to become professionals in their industries. Education is a constant target of both traditional and nontraditional attempts to raise standards (Firdaus et al., 2019). When schools are well-run in all three areas—learning, human resources (in this example, teachers), and administration—they turn out students who can hold their own in more expansive and challenging educational environments (Goss et al., 2017). At the same time, graduating classes from poorly run institutions will be lacking in quality (Shaturaev, 2021). Many schools lack adequate learning and management systems, rendering them outdated and unprepared to compete in the modern education market (Cohen et al., 2018).

Schools are educational institutions whose primary goal is to develop human beings with personality, intellectual ability, and faith and piety (Greasley & Bocârnea, 2014). Obviously, schools will have a hard time accomplishing such a high and admirable aim. For these goals to be accomplished, it is essential to have strong principle leadership and sufficient resources (Isaacs, 2018). As stated by Warrick, (2017) Leadership at the principal level is critical for a number of reasons, including but not limited to: program and curriculum development; learning; financial resources; student services; school and community relations; and the ability to mobilize school resources (Brown et al, 2020). The ability to effectively utilize all school resources is a crucial management skill for any principal (Burkhauser, 2017). This will allow the principal to realize the school's vision and mission and achieve all set goals. In addition to being able to think conceptually and analytically, the principal should be able to handle a wide range of issues that arise at school (Duyar et al., 2019), act as a go-between when subordinate education staff members have problems and make decisions that everyone is happy with (Mariyanah et al., 2021).

A school principal is required to possess certain competencies according to a 2007 regulation by the minister of national education. These competencies include personality, management, entrepreneurship, supervision, and social skills. The regulation was issued on April 17, 2007, regarding the standards of principals. The principal's performance incorporates all five competences. Thus, for the school's goal and vision to come to fruition, the principal needs to possess the necessary abilities. From these various competencies, managerial competence becomes an interesting discussion to study.

Efforts are made with and for individuals or groups to attain organizational goals, according to Talibo, (2018). Management, according to George R. Terry, is a common procedure that includes deciding what to do, then planning, organizing, and regulating to get there by making use of people and other resources (Wibowo & Wakhudin, 2021). Management, according to DuBrin, (2020), consists of four primary tasks: planning, organizing, leading, and controlling. According to (Snell & Morris, 2018), management entails coordinating the efforts of people, teams, and other resources to accomplish a common objective. Management is encapsulated in the act of organizing, which is unique to organizational structures such as schools, businesses, and nonprofits (Buchanan & Huczynski, 2019). Thus, management is always used and is extremely important in order to regulate all activities (Zgodavova et al., 2017) in households, schools, cooperatives, foundations, government, and so on.

It is imperative that principals create a plan to enable teachers to work together effectively (Piwowar-Sulej & Iqbal, 2023). Give teachers a chance to climb the corporate ladder and get everyone working in education involved in extracurriculars that benefit students (Deng et al., 2023). If they want all of their teachers and staff to have the chance to shine, principals need to be democratic (Burkhauser, 2017). Several educational components, such as school administrators, instructors, and staff, must work together to effectively manage education and achieve educational objectives (Islam et al., 2021). There can be no separation between managerial operations and educational components to achieve synergy. The quality of school management is dependent on the principal's managerial abilities, just as in any other industry where effective management is essential to the success of a company (Kerzner, 2017). The principal is responsible for overseeing the school's operations and the execution of the curriculum, among other managerial roles and obligations (Amon & Bustami, 2021).

The principal, apart from being able to manage education, is also required to understand and apply all the substance of educational activities (Anderson, 2017). Rachmawati (2020), states that managerial competence, principals are increasingly important to be improved in line with the increasingly complex demands of the principal's duties, which require more effective and efficient performance support. The duties and responsibilities of the principal as an education manager cannot be separated from management activities, namely: planning, organizing, directing and supervising (Kerzner, 2017). The

success of the principal in managing the school cannot be separated from the ability of the principal as a leader in carrying out his functions and roles. For this reason, a school principal is required to be able to have readiness in managing the school.

Managerial, entrepreneurial, supervisory, and social competence are all components of a strong principal's capacity to meet the standards set out by the Minister of National Education's Regulation No. 13 of 2007. In order to accomplish organizational goals, which are accomplished by influencing different school organizational resources, managerial ability is crucial. Managerial competencies encompass a wide range of tasks, such as creating implementation-level school plans, organizing schools based on needs, leading schools to make the most of their resources, managing staff and teachers to maximize human resource utilization, and overseeing physical school facilities to improve curriculum implementation through academic supervision of teachers. The word "supervision" can indicate many different things. (Aldeen et al., 2014; Marinette Bahtilla, 2020) Supervision refers to any sort of support provided by school leaders, in this instance the principal, to teachers and other school workers in order to foster discipline and performance in attaining educational goals. Teachers are supported and given chances to improve their skills and abilities through supervision, which can be achieved through educational reforms or other means (Hu et al., 2020). The ability to effectively oversee and manage the education staff is essential for any principal who is responsible for supervision, as it directly impacts the performance of the staff. The ability of the principal to design the program of supervision, to carry it out, and to use the outcomes of the program to inform the next program's design is an essential component of the supervising technique (Muljawan, 2018).

Supervision of the principal certainly has a goal in developing a better teaching and learning (DiPaola & Hoy, 2013). This improvement effort is shown in the achievement of the ultimate goal of education, which is to form a person to the fullest. Based on the results of the initial study that researchers have conducted, several problems have been found, namely the principal has not been able to present a conducive and innovative culture and work climate such as teachers who do not last long in school. In addition, the principal has not been optimal in managing teachers and staff, as evidenced by the fact that there are still teachers who come late and do not fill in the absences. The initial study's findings—a lack of school partners and a small role for school committees—proved that principals had not done a good job of managing strong ties with the community. Inadequate oversight of school administrators is evidence that the program's evaluation and monitoring of school programs has also been subpar throughout implementation. Taking this into consideration, a solution to improve managerial competence and school principal supervision is required. A mobile app-based learning device is one option that can be used. Researchers offer solutions by developing Mobile Apps NextGen Leadership Program to improve the principal's managerial competence and supervision.

2. RESEARCH METHOD

The R&D type is utilized by this research model. The term "research and development" refers to the processes that go into making and testing a product. Needs analysis and product testing are two aspects of research that are essential to the product development process and to ensuring that the final products meet community needs. The following are the steps of the D&D model as outlined by Peffers et al: "1) Identify the problem motivating the research; 2) Describe the objectives;
3) Design and develop the artifact; 4) Subject the artifact to testing; 5) Evaluate the results of testing; and 6) Communicate those results".

The months of July through August 2022 saw the research taking place at Malang City's Blimbing District. This study included up to sixty-six schools in the Blimbing District whose principals were

responsible for kindergarten classes. This survey included 66 principals as affordable populations. Using a one-group, pre- and post-test design, this study is quasi-experimental. The analytical test of the Mobile Apps NextGen Leadership was administered twice to determine its efficacy; the purpose of these tests was to evaluate the principal's and managers' abilities to oversee and manage projects. The instrument used to collect data on innovative behavior variables was developed and tested first to test the validity with a product moment correlation coefficient exceeding 0.296 (n = 30). and from the calculation results (reliable) if it has a reliability coefficient value or alpha of 0.60 or more IBM SPSS 25.00 Program. Then the classical assumption test using the normality test is tried to test whether the research illustration is a fair distribution type or not. The method to find out whether the residuals are fairly distributed or not, is to use graphical analysis. The information normality experiment in this study used the Kolmogorov Smirnov experiment and was proven using SPSS.

To ensure that the line describing the actual information follows the normal line, it is reasonable to plot the residuals, as the normal distribution will generate a straight diagonal line. Next, we used the paired-sample t-test, often known as an efficacy test, to examine the study's premise. When attempting to compare two separate pictures or treatments, the paired sample t-test is employed. For normally distributed data, a paired sample t-test is the way to go. One way to determine if a treatment is working is to utilize an independent sample t-test, which compares the overall improvements between the control and experimental groups. Data used to support or refute the null hypothesis in a paired illustration t-test. It is accepted that Ha is true and Ho is rejected if the likelihood (Asymp.Sig) is less than 0.05.

3. FINDINGS AND DISSCUSSIONS

A. Findings

Research Instrument Validity Test Results

The instrument's validity is assessed through the utilization of computer software, specifically the SPSS 25.0 for Windows program.

1) Managerial Competency Questionnaire Validation Test

Table 1 Results of the Validation Test for Managerial Competence Variables

	Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1	74.1333	95.637	.586	.	.959
2	74.2667	94.754	.738	.	.957
3	73.6000	92.593	.638	.	.958
4	74.5000	92.259	.722	.	.957
5	73.7000	91.872	.819	.	.956
6	73.9000	93.059	.669	.	.958
7	73.6333	91.826	.712	.	.957
8	73.6333	90.102	.743	.	.957
9	74.1333	93.499	.710	.	.957
10	73.6667	92.230	.701	.	.957
11	73.7000	91.321	.866	.	.955
12	74.0000	93.379	.785	.	.956
13	73.4667	91.982	.794	.	.956
14	73.9000	93.679	.678	.	.958
15	73.8333	94.006	.705	.	.957

16	73.9333	91.582	.766	.	.956
17	74.1667	92.213	.689	.	.958
18	74.4333	90.737	.762	.	.957
19	73.4667	93.706	.598	.	.959
20	73.5000	90.466	.804	.	.956

1) Principal Supervision Validity

Table 2 Validation Test Results of Principal Supervision Variables

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1	27.6000	36.731	.784	.695	.815
2	27.8333	39.454	.581	.581	.837
3	27.6333	40.792	.652	.590	.832
4	27.7000	40.769	.483	.497	.848
5	27.5667	40.668	.479	.532	.848
6	27.6333	40.171	.526	.447	.843
7	27.8667	41.223	.548	.496	.841
8	27.8333	41.109	.577	.541	.838
9	27.9333	39.857	.580	.496	.837

Based on the output of the validity test of the research instrument on the managerial competence variable and the supervision of the principal, the results obtained are valid because all Corrected Item-Total Correlation (r-count) values are greater than r-table (0.296) so that all items are declared valid.

Reliability Test Results

From this opinion, in this study the basis for making a decision whether an item is reliable or

not is alpha (α) 0.60. Managerial Competency Variables

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.959	.960	20

Principal Supervision Variable

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.853	.856	9

Based on the data provided, it can be inferred that the instruments used to measure administrative competence, principal supervision, teacher competence, training, and execution of the emergency curriculum are deemed reliable since they have a Cronbach's alpha value over 0.60.

Results of the normality test

The data in this study underwent a normality test using the PPlot normal graph test and the One-Sample Kolmogorov Smirnov test, both of which are included in the SPSS 26.0 for Windows application. The table below displays the results of the normalcy test.

Table 3 Normality Test Results

One-Sample Kolmogorov-Smirnov Test		Managerial Competence	Supervision
N		66	66
Normal Parameters a, b	Mean	3.8466	3.5087
	Std. Deviation	.44344	.60969
Most Extreme Differences	Absolute	.065	.062
	Positive	.049	.056
	Negative	-.065	-.062
Test Statistic		.065	.062
Asymp. Sig. (2-tailed)		.071c	.098c

a. Test distribution is Normal.

b. Calculated from data.
c. Lilliefors Significance Correction.

From table 3 above, it can be seen that the value of the managerial competence variable is 0.065 with a sig value of
0.071 c, d and on the principal's supervision variable is 0.0062 with a sig value of 0.098 c, d greater than 0.05. Thus, it can be concluded that H0 is accepted and H1 is rejected, so it can be concluded that all residuals in the variables are normally distributed.

Hypothesis testing
Paired Sample T-test
Once the precondition test, including normality and homogeneity tests, has been completed, it can be utilized to test the hypothesis. The statistical test employed in this study is a parametric test known as the Paired Sample T-test, which is suitable for analyzing two linked variables. This test is utilized to ascertain the presence of a mean disparity between two sets of related sample groups. Specifically, there were two samples that underwent distinct treatments.

Table 4 Test Results Paired Sample T-test of Managerial Competence

	Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_Competence	56.43	66	16.229	2.23282
	Post_Competence	81.36	66	18.5034	1.55252

Table 5 Test Results Paired Sample T-test of Managerial Competence

		Paired Samples Test			
		Paired Differences			Sig.
		Mean	Std. Deviation	Std. Error Mean	
Pair 1	Pre_Competence-Post_Competence	24.9333	6.15844	1.12437	0.000

According to the findings from the paired sample t-test, as shown in table 5,... The table above presents the results of a paired samples test assessing the increase in employee competence. The average pretest score is 56.43, while the average posttest score is 81.36. The t-test calculation indicates that the t-count value is greater than the t-table value. Additionally, the significance value is 0.000, which is less than the threshold of 0.05. Therefore, we can conclude that there is a significant difference in managerial competence before and after the use of Mobile Apps NextGen Leadership. Additionally, the paired sample t-test for the supervision variable is presented in table 6:

Table 6 Paired Sample T-test of Supervision

	Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_Supervision	58.40	66	14.229	2.23282
	Post_ Supervision	82.09	66	18.5034	1.55252

Table 7 Paired Sample T-test Supervision

| | | Paired Samples Test | | | |
| | | Paired Differences | | | Sig. |
		Mean	Std. Deviation	Std. Error Mean	
Pair 1	Pre_Supervision-Post_ Supervision	23.8390	6.04877	1.12437	0.000

According to the data in table 7, the paired sample t-test results indicate that increasing the supervision of the principal resulted in a pretest score of 58.40 and a post-test score of 82.08. If the t-count value is greater than the t-table value and

the significance value is 0.000 (less than 0.05), it can be stated that there is a significant difference in the supervision of the principal before and after the adoption of Mobile Apps NextGen Leadership.

b. Discussions

The utilization of NextGen Leadership mobile applications is recognized to enhance the managerial proficiency and oversight of kindergarten principals. This can be observed from the significance score. The statistical analysis indicated a significant difference ($p<0.05$) in scores between the pre-test and post-test for enhancing management competence and supervision of kindergarten principals. The results align with the study conducted by (Kerimbayev et al., 2020), which found that the decision-making, monitoring, and communication features of this LMS greatly assist principals in managing their organizations. Additionally, the active involvement of teachers in these processes leads to increased effectiveness of e-leadership. In line with the research of Krüger, Pretorius, & Erasmus (2019) the results of innovation-comprehensive models of technology implementation. To improve e-leadership, we recommend that principals expand the implementation of the school management system. The use of Mobile Apps NextGen Leadership has been identified as a valuable tool for improving the managerial competence and supervision of kindergarten principals. Research has shown that principals with solid managerial skills can motivate school staff effectively, leading to enhanced teacher performance (Yuserizal Bustami & Eka Putra, 2023). Additionally, the effectiveness of madrasahs has been linked to the analysis of managerial skills, learning supervision, school culture, and teacher performance, emphasizing the positive impact of principal's managerial competence on teacher job satisfaction and performance (Mutohar & Trisnantari, 2020). Furthermore, studies have explored the influence of principal's managerial competence on teacher productivity, highlighting the importance of this competence in enhancing teacher performance (Azainil et al., 2021). Moreover, the effect of academic supervision, managerial competence, and teacher empowerment on teacher performance has been investigated, indicating the significant role of managerial competence in improving teacher commitment and performance (Muttaqin et al., 2023). The quality of school-based management implementation has also been associated with principals' competence, underscoring the importance of managerial skills in enhancing the quality of educational practices (Triningsih & Muhyadi, 2019).

Sanoto et al., (2022) found that qualitative research uncovered numerous benefits and drawbacks associated with both methodologies. Within this context, the shared e-leadership approach is seen valuable, particularly for cultivating a collective feeling of ownership by distributing leadership roles among group members and guaranteeing an equitable allocation of tasks and workload. The vertical e-

leadership strategy effectively facilitates communication, cooperation, and coordination among group members through the group leader, assuring the smooth progression of group activity (Yafie et al., 2020). A study conducted by Yafie et al., (2022) has been the subject of recent research. The data analysis results indicate that leadership, organizational dedication, and service quality have a substantial impact on school accomplishment. This study introduces a novel research model that incorporates e-leadership, organizational commitment, and service quality characteristics to assess their impact on school performance.

CONCLUSIONS

Based on the research findings from the study on the Mobile Apps NextGen Leadership program, it is evident that there is a significant improvement in the competence and supervision of kindergarten principals after the implementation of the program. The calculated significance value of 0.000, which is less than the standard threshold of 0.05, indicates a substantial difference in the competence and supervision of kindergarten principals before and after utilizing the Mobile Apps NextGen Leadership program. Academic supervision and principal leadership have been shown to significantly influence teacher performance, further underlining the importance of these factors in driving positive changes in educational settings. Additionally, the contribution of kindergarten principal leadership and academic supervision to teacher performance has been recognized, showcasing the significance of effective leadership and supervision in improving teacher outcomes. Moreover, the study results suggest that the principal's academic supervision can positively affect teacher competence, emphasizing the role of supervision in enhancing teacher skills and performance. Leadership styles, organizational culture, motivation, and principal supervision have been found to impact teacher performance significantly, highlighting the interconnectedness of these factors in driving educational excellence. In conclusion, the research supports the notion that Mobile Apps NextGen Leadership programs can effectively enhance the competence and supervision of kindergarten principals, leading to improved teacher performance and overall educational quality. By leveraging technology and effective leadership practices, educational institutions can foster a conducive learning environment and drive positive outcomes in the education sector.

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