

Analyzing The Stronger Relationship Between Intelligence Quotient And Managerial Ability As The Main Supporter Of Performance Coordinator And Sub Coordinator At Universitas Negeri Surabaya

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Abstract

Personnel has an essential role in universities. Education personnel ensures that an institution's education maintenance system runs smoothly. There are regulatory changes to the management of educational employees that will affect the presentation of the education workers. This rule change will be a problem for education personnel who cannot adjust to working. The study's goal was to look at the relationship between IQ and managerial talents and the performance of UNESA coordinators and sub-coordinators. This research is ex post facto research. The population of this study is the complete education force (TENDIK) at Universitas Negeri Surabaya (UNESA). The sampling technique used is purposive sampling. The sample of this study was 57 Tendik people who had the position of Coordinator and sub-coordinator. This research variable is IQ and managerial ability as exogenous and performance variables consisting of 6 (six) variables, namely Service Orientation (OP), Integrity (IT), Commitment (KM), Discipline (DS), Cooperation (KS), and Task Service Loyalty (LP) as endogenous variables. Partial Least Square-Structural Equation Modeling is used to analyze data (SEM-PLS). The conclusion shows that when compared between IQ and managerial ability, the overall administrative ability has a stronger association with performance than IQ. It has a long-term impact on the ability of instructors in a university setting to perform at a higher level than those with high IQs.

Keywords— IQ, Managerial Ability, Performance, Education Personnel, Coordinator.

INTRODUCTION

Personnel plays a vital role in the management of universities. The part of education personnel explicitly handles educational institutions, planning an educational design, facilitating educational activities, securing the academic environment, and helping to create a beautiful and comfortable atmosphere of the educational environment. Education has not fully prepared information and skills essential to performing optimally in the workplace [1]. Student workplace facilities experience professional growth in providing critical sources of specialist knowledge in specialized training and further education [2]. Educational material is underrepresented given induction's pervasiveness in research [3]. Primary, closing educational social networks of children and teenagers. Higher parental

education rated children significantly, improvement, anxiety/depression, and withdrawal/depression [4].

The function of education personnel ensures the continuity of a system of management of education, supports the sustainability of a system in educational institutions, provides facilities to educators and learners in carrying out educational activities, provides comfort and security of the academic environment, and regulates the educational process in an institution—international, descriptive study characteristics of regulatory and educational frameworks for the global naturopathic profession. Education plays an essential role in the sustainability of future generations, known as sustainability education. It must be central to educational strategies to achieve sustainability about utilizing resources. Higher education institutions' solution integrates

sustainability issues in research, curriculum, outreach, and campus operations. Pandemics cause new educational requirements, sustainability of technology use, and science education to become more important. Regulations related to education personnel become important in implementing tasks in ensuring the continuity of education. The rule becomes the basis in carrying out the duties and responsibilities of the energy of education. The end of school, college, or university is stressful for those with basic education [5]. Analyze academic performance in a group of future Physical Education instructors regarding psychosocial characteristics, self-concept, and emotional intelligence [6]. The indisputable significance and weight of the proverb are that no state can be great or increase above the quality of its education system, and no education system can climb above the excellence of its instructors [7].

There's been a change in the working system. Changes in regulations will affect the performance of the education personnel. Education personnel needs to adjust again to the new rules. This rule change will be a problem for education personnel who cannot adjust to working. Therefore, it is considered essential to research performance evaluation to develop the management system of education personnel in higher education. According to statistics, groups have identical performance levels on investigation [8]. The goal is to pique their attention by asking them to make props for a scheduled performance, for example, [9]. Indeed, financial class, parental psychopathology, and parental education level have all been linked to offspring's school performance in the past [10]. Students' opinions and performance were analyzed, and they discovered that peer review applications boosted student participation and resulted in higher grades [11]. The process results in more or less involvement in society (e.g., economic, social, political, and cultural). In counting, students participate in teaching-learning by taking on new responsibilities with the teachers involved [12]. Skills include participation, perspective-taking, social regulation, learning and knowledge development, and task rules [13].

Performance is the consequence of workers adhering to the standards that apply to work completed within a specific time frame. The appearance of work or outcomes accomplished by either a product or service used as a basis for self-assessment or organization that displays the employee's knowledge and skill regarding the job is called performance. Performance indicators

include quality, quantity, punctuality, cost-effectiveness, the need for supervision, and interpersonal impact in various professions [14].

According to Nawawi (2006: 63), performance is achieved, achievement showed, and workability. A working target is considered high-performing if it is accomplished on time or surpasses the time restriction set. Performance suffers when tasks are completed outside of the time limit or are left unresolved. Fadlan further (2016: 44) indicated that performance is a person's result or overall success rate in completing a task over a period, which is influenced by factors such as work standards, targets or objectives, or defined criteria. All variables, general skills, academic performance, personal circumstances, outside employment exchanges, have significant and positive students about employability and university contributions [15].

Performance is a work performance that results from implementing a work plan made by the company to be implemented to achieve the company's goals (Abdullah, 2014: 3). Performance needs serious attention within the company. Setting the performance of employees in a company is often referred to as performance management. Government measures that ensure high-speed digital connectivity increased training in digital skills and encouraged collaborative integration processes [16].

Performance management is managed to create effective relationships and communication related to the needs of organizations, leaders, and employees. Performance has similarities with the term performance in the clover language, which is a person's success in resonating the task or work specified. Performance management includes the process of a performance implementation activity. In new years, Breakthrough tasks such as image enhancement resolution have resulted in performance first, resulting in neural improvement [17].

By way of one of the human resources as a supporter of educational institution organizations' ability, education personnel or administrative employees are sometimes still considered only complementary, less attention in their management. In general, the role of education personnel in educational institutions is only a supporter, but if not managed properly, it will be an obstacle in the ability of organizational goals. The field of education has undergone significant variation with the inclusion of ICT, implementing various tools, from drones to explanations of theoretical ideas [18], because the findings and conclusions of the study were

unaffected by the college, location, background, college staff, report information from parties.

Good management of human resources education personnel is one of the critical factors to get good employee performance. The organization's goals will be easier to achieve. Students and instructors who use Twitter for educational reasons should think about the benefits, such as active student participation, as well as the drawbacks, such as Twitter's disruptive nature and overwhelming Tweets [19].

Learning experiences and educational reforms expectations, given the sudden During the first month of confinement due to the epidemic, Nursing students switch face-to-face to e-learning [20].

Based on the description overhead, it can be stated that performance is the product of an employee's hard work in carrying out his job duties to meet the company's objectives. Good performance indicates the employee's knowledge and ability about the job. High performance can be measured by the power of work targets and can be finished on time. Setting the performance of workers in the company is called performance management. Good performance can make it easier for the company to reach its goals. The advantages of assessment tests are carried out to measure the development of student performance, and the analysis obtained [21]. Captive-transcription by their performance is contingent mainly on the smooth units to be operated and a little on the task form. For example, illiteracy performs poorly on the removal task when the target segment is consonant but better with vowels or syllables [22]. Imtiaz et al. (2013: 718) explain that assessing or evaluating human resource performance becomes essential. Performance evaluation can help encourage employees, develop attitudes and behaviours, communicate and align individual and corporate goals, and build strong management-staff relationships. Students' educational performance and skill development are positively impacted by technology-based learning experiences that boost students' creative design competencies [23]. Studies suggest this style of pedagogy can engage a broader range of learning techniques and positively affect motivation [12] and performance, especially in project-based learning [24].

Elna and Imran (2013: 143) describe the indicators in performance assessment, including ability, standards, knowledge and skills, measurement, feedback, environment, and motivation. Performance not evaluated these results are deemed necessary reports acceptable on the technical side [25]. Using

technology by students impacts teacher performance and training, giving them anxiety and stress [26]. Generic abilities, Significant academic performance benefits employability across all factors. At the same time, students' employment experience and university and consultant contributions did not. It has led to improved performance of daily activities in adults [27].

Assess personnel data from large companies and establish how subjective performance assessment correlates with objective career outcomes. Performance correlates with base salary, bonuses, promotions, demotions, separations, dismissals, etc. It used self-reports rather than performance on exams or examinations [28]. Employee performance is usually determined by personal, organizational, environmental, motivation, skill level, talent, or position perception, and organizational leaders should utilize a systematic strategy to measure employee performance. Training and development are important tools to maximize employee performance and help them become more efficient, productive, satisfied, motivated, and innovative at work [29].

Here are two sorts of performance indicators: performance indicators that measure results (result indicators) and performance indicators that measure processes (performance indicators). Different hardware and software solutions analyze students' performance [30].

Richardson, K., & norgate, S. H. (2015: 166) explains that IQ is associated with performance but with low and inconsistent correlations. An IQ test should be well observed before measuring the relationship between performance and IQ tests. A significant group-by-gender interaction using ANCOVA with the covariate of verbal IQ revealed that autistic and neurotypical females have equal levels of social reciprocity. Autistic males, on the other hand, had lesser interchange than neurotypical males [31]. I used a phonograph to assess VPT2 services in children's with ASD and discovered that they performed worse than typically developing children of the same chronological age and IQ. Hamilton and colleagues (Hamilton et al.) [32].

We generated an appropriate set of reverse transcription recombinase polymerase amplification (RT-RPA) reader and exonuclease probe, internally quenched (exo-IQ) orders directing the SARS-CoV-2 N gene using computational and manual designs. RT-RPA [33].

Suggests a large and intriguing body of research that suggests IQ is a good analyst of job presentation and office exercise skills. Explains that IQ is positively correlated with creativity, but not significantly. IQ-strong TREE's performance is due to the effective integration of novel phylogenetic approaches that improve the three crucial processes in phylogenetic analysis: ModelFinder allows for quick model selection [34]. Competence relates positively to individual performance, and mentoring the competency system can improve individual managerial performance. Evidence of a relationship between competence and unit-level performance is weaker.

Method

This research is ex post facto research. The population of this study is the complete education force (Tendik) at Surabaya State University (UNESA). The sampling technique used is purposive sampling. The sample of this study was 57 Tendik people who had the position of Coordinator and sub-coordinator. Data collection techniques use tests for IQ and managerial abilities. Direct superiors assess employee performance. According to the research, knowledge leadership skills, corporation and faith, and information integrations all positively impact project presentation and quality performance [37].

Managerial capabilities (CEOs) and corporate strategies are critical to a company's performance and risk. Administrative ability can be attributed to the company's version. Based on the background description of the above problem, a study is needed to analyze the relationship between IQ and managerial tests with the performance of coordinators and sub-coordinators at UNESA. Remained customary by an element of education managers [35]. Students were separated into teams in this paper's project-based learning. Each team has an internal coordinator responsible for following up on the team's interactive and collaborative work and communicating with the instructor [36].

These research variables are divided into exogenous variables and endogenous variables. Its exogenous variables are IQ and managerial ability (M). The endogenous variable is a performance consisting of 6 (six) variables, namely Service Orientation (OP), Integrity (IT), Commitment (KM), Discipline (DS), Cooperation (KS), and Task Service Loyalty (LP). Data analysis uses Partial Least Square-Structural Equation Modeling (SEM-PLS) to determine the effect or weight of exogenous variables on endogenous variables.

The model of relationships between variables can be seen in Figure 1.

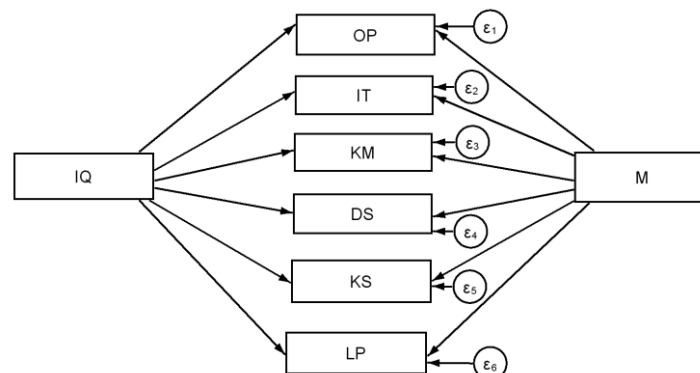


Figure 1. The model between research variables

Results And Discussions

Based on the data analysis and documentation results, it can be produced as follows.

Descriptive analysis results

Descriptive analysis of data using STATA programs and input data from two exogenous and six endogenous variables

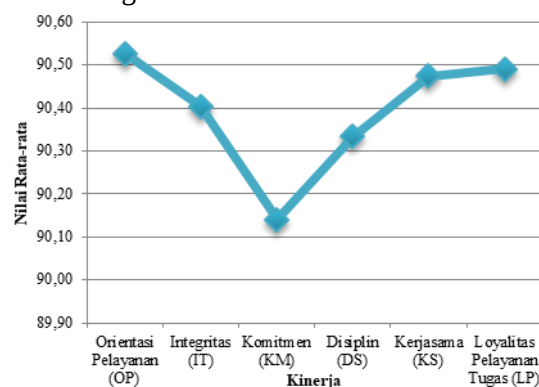
can be seen in state output in Table 1. The descriptive analysis findings display the average, normal deviations, least, and supreme values.

Table 1. Data STATA and input data

Variable	Obs	Mean	Std. Dev.	Min	Max
OP	57	90.52632	5.064.249	60	97
IT	57	90.40351	5.294.403	60	98
KM	57	90.14035	5.413.075	60	97
DS	57	90.33333	4.841.537	65	96
KS	57	90.47368	5.9435	55	98
LP	57	90.49123	5.726.264	60	98
IQ	57	107.7368	7.626.379	91	127
M	57	13.03509	1.451.168	10	16

Based on Table 1, the highest average scores in performance tests are Service Orientation (OP) with an average score of 90.53 and Service Loyalty (LP) with an average score of 90,491. The lowest average score is on the Commitment test score (KM), with an average of 90,140. A comparison of the average scores of performance test results can be seen in Figure 2.

The average IQ test result was 107,737, with the most significant IQ test score being 127 and the lowest IQ test score being 91. The average managerial test result was 13,035, with the most effective administrative test score being 16 and the lowest executive test score being 10.

**Figure 2.** Comparison of performance value averages

Based on Figure 2 above, it can be seen that the highest performance value is on service-oriented (OP), then loyalty service tasks (LP) and cooperation (KS). The lowest values are commitment (KM), then discipline (DS), and Integrity (IT).

Relationship between IQ and Performance

The results of SEM analysis with ML estimates of the relationship between IQ results and performance container be seen in Figure 3 and Table 2.

Table 2. Relationship of IQ with performance

Standardized	Coef.	OIM Std. Err.	z	P>z	[95%Conf. Interval]
Structural					
OP					
IQ	.1238633	.1299199	0.95	0.340	-.130775 .3785017
_cons	16.26911	2.61531	6.22	0.000	11.14319 21.39502
IT					
IQ	.1366813	.1293703	1.06	0.291	-.1168798 .3902424
_cons	15.27904	2.566377	5.95	0.000	10.24903 20.30905
KM					

IQ	.1350053	.1294452	1.04	0.297	-.1187027	.3887132
_cons	14.87621	2.538235	5.86	0.000	9.901358	19.85106
DS						
IQ	.108816	.1304968	0.83	0.404	-.1469531	.3645851
_cons	17.27295	2.661664	6.49	0.000	12.05618	22.48971
KS						
IQ	.0945917	.1309741	0.72	0.470	-.1621129	.3512963
_cons	14.00944	2.43464	5.75	0.000	9.237633	18.78125
LP						
IQ	.084385	.1312757	0.64	0.520	-.1729107	.3416808
_cons	14.74062	2.465624	5.98	0.000	9.908.083	19.57315

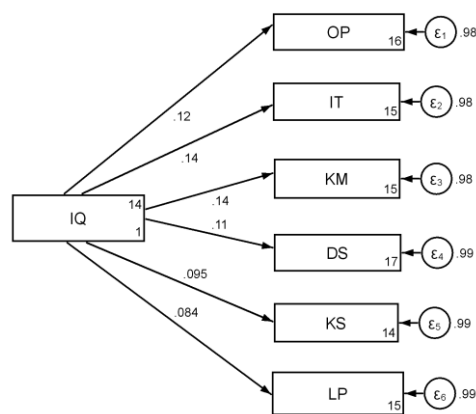


Figure 3. Relationship of IQ with performance

Figure 3 and Table 2 show that IQ has a relationship with performance with the most significant coefficient on integrity (IT) of 0.137, commitment (KM) of 0.135, and service orientation (OP) of 0.124. However, IQ has a low or less influential relationship to discipline (DS), cooperation (KS), and task service loyalty (LP) with constants of 0.108, 0.094, and 0.084, individually. These outcomes showed that IQ results had an association with performance. But the relationship is low. According to Richardson & Norgate (2015: 166),

IQ has a connection with performance but a common correlation. IQ is used to measure cognitive ability, while the version refers to other skills that enter the process and products in completing work.

The Relationship between Managerial Ability and Performance

The results of SEM analysis with ML estimation of the relationship between managerial ability results and performance can be seen in Figure 4 and Table 3.

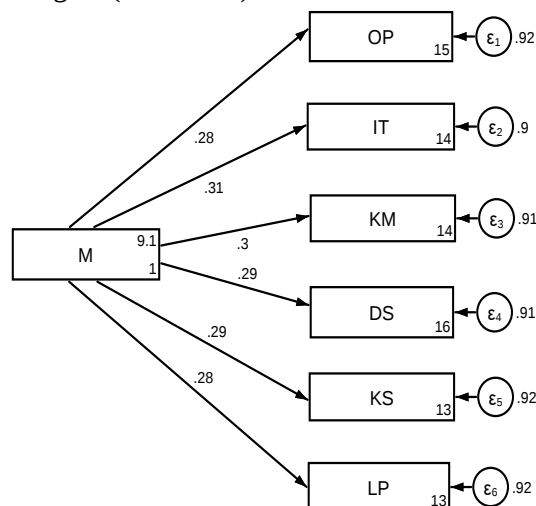


Figure 4. Relationship of managerial ability with work

Table 3. Results of analysis of the relationship of administrative capacity with performance

Standardized	Coef.	OIM Std. Err.	z	P>z	[95% Conf.	Interval]
Structural						
OP						
M	.2841643	.1192744	2.38	0.017	.0503907	.5179379
_cons	15.45927	2.169649	7.13	0.000	11.20684	19.71171
IT						
M	.3142182	.1163918	2.70	0.007	.0860944	.542342
_cons	14.37953	2.098886	6.85	0.000	10.26579	18.49328
KM						
M	.3039794	.1174042	2.59	0.010	.0738714	.5340875
_cons	14.0456	2.066762	6.80	0.000	9.994823	18.09638
DS						
M	.2931337	.1184425	2.47	0.013	.0609907	.5252767
_cons	16.16737	2.233027	7.24	0.000	11.79072	20.54402
KS						
M	.2858226	.1191224	2.40	0.016	.0523469	.5192983
_cons	12.76739	1.955788	6.53	0.000	8.934111	16.60066
LP						
M	.2815479	.1195125	2.36	0.018	.0473076	.5157882
_cons	13.39183	2.002474	6.69	0.000	9.467057	17.31661

It has a significant relationship with six performance indicators, indicated by the relationship's coefficient. The most significant coefficients are on integrity (IT) of 0.314, commitment (KM) of 0.304, and discipline (DS) of 0.293. The lower relationships are to cooperation (KS), service orientation (OP), and loyalty of task services (LP) with coefficients of 0.286, 0.284, and 0.281, respectively.

The managerial ability has a relationship with performance. Is following the research of Cheng et al. (2020) and Demerjian et al. (2012), which stated that managerial ability is essential to the strategy and performance of the company.

The Relationship Between IQ and Managerial Ability

The relationship between IQ and managerial ability (M) is shown in Table.

Table 4. Results of analysis of managerial test relationships with performance

M	Coef.	Std. Err.	t	P>t	Beta
IQ	0.0148988	0.025579	0.58	0.563	0.0782984
_cons	11.42993	2.76257	4.14	0.000	.

Based on Table 4, it is found that IQ with managerial ability has a relationship but a low level at a beta coefficient value of 0.0783. The relationship is seen from its significance, namely the value of $P>t$ of 0.563 above 0.05, then the relationship is not significant. The experiential link between institutionalization and lower intelligence quotient (IQ) and advanced degrees of care deficit/hyperactivity complaint symptoms was statistically mediated by international discounts in TVB (Mackes et al. 2020). TVB meaningfully mediated the association between institutional and IQ in

the three path models with bootstrapped SEs and bias-corrected confidence intervals (CIs; 5,000 bootstraps), ($n = 88$, $B = -5.51$, $Se = 2.34$, 95% CI = $[-11.49, -1.67]$, $R^2 = 0.20$). When TVB was included in the model, the direct link between institutionalization and IQ was no longer significant ($B = 5.85$, $SE = 4.68$, 95 per cent CI = $[14.79, 3.46]$). The relationship between institutionalization and ADHD indications was also arbitrated by TVB ($n = 80$, $B = 0.93$, $SE = 0.55$, 95 per cent CI = $[0.03, 2.24]$, $R^2 = 0.12$). (Mackes et al.

2020).The relationship between IQ, Managerial Ability, and Performance

The results of SEM analysis with ML estimates of the relationship between IQ results, managerial ability, and performance can be seen in Figure 5 and Table 4.

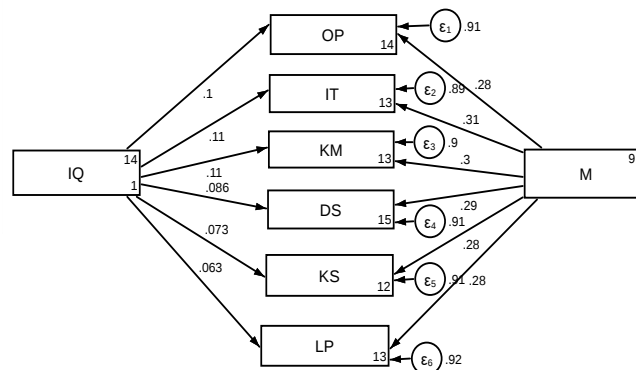


Figure 5. Relationships with IQ, managerial ability, and performance

Table 5. Results of analysis of administrative test relationships with performance

Standardized	Coef.	OIM Std. Err.	z	P>z	[95% Conf.	Interval]
Structural						
OP						
IQ	.1022405	.1257015	0.81	0.416	-.14413	.348611
M	.2761591	.1194767	2.31	0.021	.0419891	.510329
_cons	14.07464	2.787202	5.05	0.000	8.611828	19.53746
IT						
IQ	.1127698	.1240959	0.91	0.363	.1304536	.3559933
M	.3053885	.1165597	2.62	0.009	.0769357	.5338413
_cons	12.85231	2.712383	4.74	0.000	7.536133	18.16848
KM						
IQ	.1118901	.1245661	0.90	0.369	-.132255	.3560352
M	.2952186	.1175586	2.51	0.012	.0648081	.5256292
_cons	12.53029	2.691881	4.65	0.000	7.254298	17.80628
DS						
IQ	.0863938	.1258245	0.69	0.492	.1602176	.3330052
M	.2863692	.1187795	2.41	0.016	.0535656	.5191728
_cons	14.99735	2.835311	5.29	0.000	9.440241	20.55445
KS						
IQ	.0726577	.1264682	0.57	0.566	.1752155	.3205308
M	.2801336	.1195259	2.34	0.019	.0458672	.5144001
_cons	11.78339	2.616426	4.50	0.000	6.655292	16.91149
LP						
IQ	.0627248	.1268523	0.49	0.621	-.185901	.3113507
M	.2766366	.1199525	2.31	0.021	.041534	.5117392
_cons	12.54236	2.654784	4.72	0.000	7.339078	17.74564

Figures five and Table 4 show that IQ and managerial ability have a relationship with performance with the same highest coefficients,

namely on integrity and commitment. IQ has a connection with low performance, with the most significant coefficient being only 0.113.

Managerial tests have an association with higher or stronger performance when compared to IQ, with the most significant coefficient being 0.305.

These results explain if the managerial ability is more influential on the performance of employees and institutions than IQ. IQ is also associated with performance, but its value is low. IQ is the basis of a worker's cognitive assessment. IQ becomes the essential ability of employees, while performance is an applied ability. Managerial capacity plays a role in education personnel who organize educational organizations ranging from planning, organizing, and implementing to evaluating educational programs.

Intelligence quotient (IQ) has a lower influence on the performance of education personnel than on managerial ability. Nevertheless, IQ remains an early measure of an employee's knowledge. IQ indicates the cognitive skills of a human being. Explains how intelligence can be used to predict job success and training. The relationship between IQ and creativity is positive, but not significantly so.

Conclusion

It can be concluded as follows based on the research findings and discussion. (1) IQ has a relationship with performance, with the most significant coefficients on integrity, commitment, and service orientation. But IQ has a more negligible effect on discipline, service loyalty, and cooperation. (2) Managerial ability has a significant relationship with six performance indicators indicated by the relationship coefficient. (3) When compared between IQ and managerial ability, the overall managerial ability has a stronger relationship to performance compared to IQ.

Suggestion

Based on the conclusions above, some of the following can be suggested. (1) For staffing parties to evaluate performance on Service Orientation, Integrity, Commitment, Discipline, Cooperation, and Loyalty of Task Services, it is advisable to use managerial capability tests. (2) For staffing parties, it is also advisable to

measure performance on integrity, commitment, and service orientation using IQ tests (3) For the next researcher to research by analyzing IQ test results and managerial abilities according to each position to get more detailed results.

REFERENCES

1. W. Hiew, R. P. Tibok, W. Ngui, D. Gabda, and Q. Suyansah, "Science graduate employability and english language proficiency: Findings from a malaysian public university," *Int. J. Learn. Teach. Educ. Res.*, vol. 20, no. 7, pp. 23–43, 2021, doi: 10.26803/IJLTER.20.7.2.
2. S. G. Grasmø, I. F. Liaset, and S. E. Redzovic, "Home care workers' experiences of work conditions related to their occupational health: a qualitative study," *BMC Health Serv. Res.*, vol. 21, no. 1, pp. 1–13, 2021, doi: 10.1186/s12913-021-06941-z.
3. L. M. van Peppen, P. P. J. L. Verkoeijen, S. V. Kolenbrander, A. E. G. Heijltjes, E. M. Janssen, and T. van Gog, "Learning to avoid biased reasoning: effects of interleaved practice and worked examples," *J. Cogn. Psychol.*, vol. 33, no. 3, pp. 304–326, 2021, doi: 10.1080/20445911.2021.1890092.
4. S. J. Schmidt, L. P. Barblan, I. Lory, and M. A. Landolt, "Age-related effects of the COVID-19 pandemic on mental health of children and adolescents," *Eur. J. Psychotraumatol.*, vol. 12, no. 1, 2021, doi: 10.1080/20008198.2021.1901407.
5. R. Khalil *et al.*, "The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives," pp. 1–10, 2020.
6. T. Espejo-Garcés, J. Cachón-Zagalaz, F. Zurita-Ortega, G. González-Valero, and J. L. Ubago-Jiménez, "Study of psychosocial and academic indicators in young adults from andalucía, Spain," *Int. J. Environ. Res. Public Health*, vol. 18, no. 2, pp. 1–12, 2021, doi: 10.3390/ijerph18020363.
7. A. Derakhshan, C. Coombe, K. Zhaleh, and M. Tabatabaieian, "Examining the roles of

- continuing professional development needs and views of research in english language teachers' success," *Tesl-Ej*, vol. 24, no. 3, pp. 1–28, 2020.
8. F. Del Cerro Velázquez and G. M. Méndez, "Application in augmented reality for learning mathematical functions: A study for the development of spatial intelligence in secondary education students," *Mathematics*, vol. 9, no. 4, pp. 1–19, 2021, doi: 10.3390/math9040369.
 9. S. Walan, "The dream performance—a case study of young girls' development of interest in STEM and 21st century skills, when activities in a makerspace were combined with drama," *Res. Sci. Technol. Educ.*, vol. 39, no. 1, pp. 23–43, 2021, doi: 10.1080/02635143.2019.1647157.
 10. A. Vilaplana-Pérez *et al.*, "Much more than just shyness: The impact of social anxiety disorder on educational performance across the lifespan," *Psychol. Med.*, vol. 51, no. 5, pp. 861–869, 2021, doi: 10.1017/S0033291719003908.
 11. J. J. Serrano-Aguilera *et al.*, "Using peer review for student performance enhancement: Experiences in a multidisciplinary higher education setting," *Educ. Sci.*, vol. 11, no. 2, pp. 1–21, 2021, doi: 10.3390/educsci11020071.
 12. E. Martínez-Valdivia, M. C. Pegalajar-Palomino, and M. L. Higuera-Rodríguez, "Dialogic literary circles as a methodological strategy for the training of students in early childhood education degree," *Int. J. Instr.*, vol. 14, no. 3, pp. 255–270, 2021, doi: 10.29333/iji.2021.14315a.
 13. E. Hendarwati, L. Nurlaela, and B. S. Bachri, "The collaborative problem based learning model innovation," *J. Educ. Soc. Res.*, vol. 11, no. 4, pp. 97–106, 2021, doi: 10.36941/jesr-2021-0080.
 14. A. Botchkarev, "A new typology design of performance metrics to measure errors in machine learning regression algorithms," *Interdiscip. J. Information, Knowledge, Manag.*, vol. 14, pp. 45–76, 2019, doi: 10.28945/4184.
 15. M. Ergün and H. Şeşen, "A Comprehensive Study on University Students' Perceived Employability: Comparative Effects of Personal and Contextual Factors," *SAGE Open*, vol. 11, no. 3, 2021, doi: 10.1177/21582440211036105.
 16. J. Jorge-Vázquez, M. P. Chivite-Cebolla, and F. Salinas-Ramos, "The digitalization of the european agri-food cooperative sector. Determining factors to embrace information and communication technologies," *Agric.*, vol. 11, no. 6, 2021, doi: 10.3390/agriculture11060514.
 17. R. Lee, S. I. Venieris, and N. D. Lane, "Deep Neural Network based Enhancement for Image and Video Streaming Systems: A Survey and Future Directions," *ACM Comput. Surv.*, vol. 54, no. 8, 2022, doi: 10.1145/3469094.
 18. J. A. Espinosa-Navarro, M. Vaquero-Abellán, A. J. Perea-Moreno, G. Pedrós-Pérez, P. Aparicio-Martínez, and P. Martínez-Jiménez, "The higher education sustainability before and during the COVID-19 pandemic: A spanish and ecuadorian case," *Sustain.*, vol. 13, no. 11, pp. 1–22, 2021, doi: 10.3390/su13116363.
 19. A. Makki and A. O. Bali, "The use of social media as a platform in education: Ramifications of COVID-19 in Iraq," *Acad. J. Interdiscip. Stud.*, vol. 10, no. 3, pp. 394–408, 2021, doi: 10.36941/AJIS-2021-0093.
 20. A. Jes, C. Leal-costa, and E. Moral-garc, "Experiences-of-nursing-students-during-the-abrupt-change-from-facetoface-to-elearning-education-during-the-first-month-of-confinement-due-to-COVID19-in-SpainInternational-Journal-of-Environmental-Research-and-Publ.pdf," 2020.
 21. K. Polhun, T. Kramarenko, M. Maloivan, and A. Tomilina, "Shift from blended learning to distance one during the lockdown period using Moodle: Test control of students' academic achievement and analysis of its results," *J. Phys. Conf. Ser.*, vol. 1840, no. 1, 2021, doi: 10.1088/1742-6596/1840/1/012053.

22. J. Morais and R. Kolinsky, *Seeing thought: a cultural cognitive tool*, vol. 5, no. 2. 2021.
23. M. S. Ramírez-Montoya, M. I. Loaiza-Aguirre, A. Zúñiga-Ojeda, and M. Portuñal-Castro, "Characterization of the teaching profile within the framework of education 4.0," *Futur. Internet*, vol. 13, no. 4, pp. 1–17, 2021, doi: 10.3390/fi13040091.
24. E. Smith, K. McRae, G. Semple, H. Welsh, D. Evans, and P. Blackwell, "Enhancing vocational training in the post-covid era through mobile mixed reality," *Sustain.*, vol. 13, no. 11, 2021, doi: 10.3390/su13116144.
25. M. Weißl, G. Kraft, J. Innerlohinger, T. Nypelö, and S. Spirk, "Chemical Engineering Laboratory Projects in Student Teams in Real Life and Transformed Online: Viscose Fiber Spinning and Characterization," *J. Chem. Educ.*, vol. 98, no. 5, pp. 1776–1782, 2021, doi: 10.1021/acs.jchemed.8b00790.
26. J. M. Fernández-Batanero, P. Román-Graván, M. M. Reyes-Rebollo, and M. Montenegro-Rueda, "Impact of educational technology on teacher stress and anxiety: A literature review," *Int. J. Environ. Res. Public Health*, vol. 18, no. 2, pp. 1–13, 2021, doi: 10.3390/ijerph18020548.
27. A. J. Molina-Cantero *et al.*, "A study on physical exercise and general mobility in people with cerebral palsy: Health through costless routines," *Int. J. Environ. Res. Public Health*, vol. 18, no. 17, pp. 1–22, 2021, doi: 10.3390/ijerph18179179.
28. P. Klein *et al.*, "Studying physics during the COVID-19 pandemic: Student assessments of learning achievement, perceived effectiveness of online recitations, and online laboratories," *Phys. Rev. Phys. Educ. Res.*, vol. 17, no. 1, pp. 1–11, 2021, doi: 10.1103/PhysRevPhysEducRes.17.010117.
29. D. Ravšelj and N. Tomaževič, "Impacts of the COVID-19 Pandemic on Life of Higher Education Students : A Global Perspective," no. January, pp. 1–34, 2020, doi: 10.3390/su12208438.
30. M. Batez, "ICT skills of university students from the faculty of sport and physical education during the COVID-19 pandemic," *Sustain.*, vol. 13, no. 4, pp. 1–13, 2021, doi: 10.3390/su13041711.
31. H. Wood-Downie, B. Wong, H. Kovshoff, W. Mandy, L. Hull, and J. A. Hadwin, "Sex/Gender Differences in Camouflaging in Children and Adolescents with Autism," *J. Autism Dev. Disord.*, vol. 51, no. 4, pp. 1353–1364, 2021, doi: 10.1007/s10803-020-04615-z.
32. G. Lakatos, L. J. Wood, D. S. Syrdaal, B. Robins, A. Zaraki, and K. Dautenhahn, "Robot-mediated intervention can assist children with autism to develop visual perspective taking skills," *Paladyn*, vol. 12, no. 1, pp. 87–101, 2021, doi: 10.1515/pjbr-2021-0007.
33. O. Behrmann *et al.*, "Rapid Detection of SARS-CoV-2 by Low Volume Real-Time Single Tube Reverse Transcription Recombinase Polymerase Amplification Using an Exo Probe with an Internally Linked Quencher (Exo-IQ)," *Clin. Chem.*, vol. 66, no. 8, pp. 1047–1054, 2020, doi: 10.1093/clinchem/hvaa116.
34. B. Q. Minh *et al.*, "IQ-TREE 2: New Models and Efficient Methods for Phylogenetic Inference in the Genomic Era," *Mol. Biol. Evol.*, vol. 37, no. 5, pp. 1530–1534, 2020, doi: 10.1093/molbev/msaa015.
35. C. van Diggele, C. Roberts, and I. Haq, "Optimizing student-led interprofessional learning across eleven health disciplines," *BMC Med. Educ.*, vol. 21, no. 1, pp. 1–18, 2021, doi: 10.1186/s12909-021-02527-9.
36. M. K. Habib, F. Nagata, and K. Watanabe, "Mechatronics: Experiential learning and the stimulation of thinking skills," *Educ. Sci.*, vol. 11, no. 2, pp. 1–22, 2021, doi: 10.3390/educsci11020046.
37. V. Ghosh, G. Kabra, and H. S. Mukerjee, "Influence of Knowledge Leadership on IT Project Performance and Quality Practices," *Int. J. Knowl. Manag.*, vol. 18, no. 1, pp. 1–20, 2021, doi: 10.4018/ijkm.290024.