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Management Skills of Professional Engineers in the Industry and the Academe in the Samar Island: Basis for Formulating a Management Manual

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ABSTRACT

The study was conducted to determine the management skills of professional engineers in the industry and in the academe in the Samar Island: basis for formulating a management manual. The personality traits among the five factors 'conscientiousness' was more dominant and were rated as 'high extent. Problem-solving skills were rated 'very good,' and management performance was rated 'very satisfactory.' The relationship between socio-demographic profile and management skills, in terms of administrative and leadership skills, were found 'significant.' The relationship between socio-demographic profile and management performance, planning, and controlling were found 'significant.' The relationship between personality traits and management skills, leadership, and problem-solving skills dominate and were highly significant in management skills. At the same time, conscientiousness and agreeableness were highly 'significant' in personality traits. Between personality traits and management

performance: openness – planning, directing, and influencing; conscientiousness – planning; extraversion – directing; in agreeableness – planning and influencing were found significantly related, and in neuroticism – all parameters were found 'not significant.' Test difference in management skills and performance between professional engineers in industry and academe; conceptual skills were found 'significant.'

Keywords **—** Engineering, Personality Traits, Management Skills, Management Performance, descriptive-correlational method, Philippines

INTRODUCTION

Management skills are an important component of educational leader and manager competencies. There are two ways of forming a skill: imitating and practicing. Practice is the most effective. To develop a skill, learners have to do practical assignments following the four skill formation steps, dealing with practical things, and practice in real situations. It is necessary to have systems of practical assignments for the learners to practice during the learning, demonstration schools where they can learn real experiences and practice their skills. In the 21st Century, educational managers and leaders have to master the skills to lead 21st Century schools. In particular, they need ICT and English skills to use ICT in their management job and need to update with new knowledge (Loc, 2010).

Salvador (2000) studied the managerial skills practiced by the elementary school heads in the division of Zambales: its impact on teachers' morale. Findings showed that the managerial skills of school head-respondents in planning, personnel management, supervision, human and public relations, and decision-making skills were adequate as perceived by themselves and adequate as perceived by the teachers, which partly moderate influence on the managerial skills executed by the school heads.

Management comes in when professionals handle people. And to manage these people is a tough thing. Lopez (1999) reported that the managerial skills and personal development needs of the radio facility supervisors are adequate in the areas of skills, namely: technical skills, human relation, and conceptual, while they were rated only "adequate" by the non-supervisors on the same areas. Andjelkovic (2017) stated that conceptual skills might not be attainable when vision loss occurred. Riemer (2002) also added that communication skills are an

essential component in the education of engineering students to facilitate not just students' education but also to prepare them for their future careers.

Nowadays, it seems that management skills are not important anymore in improving and developing managerial aspects in the industry and the academe. *Management* is routinely understood to be accomplishing work through the expenditure of resources. More rigorously, management is the science of employing resources efficiently in the accomplishment of a goal. The classic functions of management are planning, directing, organizing, staffing, controlling, and coordinating (Richman, 2012). Escobar (2007) studied the management skills, professionalism, and performance of educational managers in selected campuses of Cavite State University system and University of Rizal System. Findings revealed that controlling, organizing, and human relation skills in terms of instruction were significantly affected by the performance of the educational managers. Likewise, organizing also affects the performance of educational managers in terms of research and extension. And in the production only in the length of service were significantly affected. Lastly, as to the hypothesis stating that management skills, professionalism, and profile of the respondents singly in combination affect their performance was "sustained."

Musingafi (2014) also studied on applying management theory into practice at secondary school in Zimbabwe: Teachers Impressions of Classical Management Functions at Mapakomhere Day Secondary School in Masvingo. The school headmaster provides leadership by delegating duties and responsibilities to staff and by motivating them. The school management is also responsible for staffing, involving assessing, appointing, evaluating, and developing the employees at work in the school. And lastly, there controlling, which all about monitoring and evaluation to ensure that everything is in the right direction to ensure the attainment of set goals. All these classical management functions were found to be useful and practiced at Mapakomhere Rural Day Secondary School in Masvingo district.

Engineers need to be influential. At all levels of an organization, engineers should play a significant role in driving innovations that will benefit customers and increase profits. Engineers are trained to innovate, but unfortunately, many have not learned the skills necessary to influence others and to develop ideas that increase profits. Engineers, then, need to know how to articulate their thoughts so that others will be inspired to build on them. They need to learn how to drive projects and ideas to create innovations that customers will value. The following are seven (7) reasons why technical professionals need leadership

skills: (1) Technical acumen alone is not influential, (2) Leadership is not just for managers, (3) Engineers lead projects, (4) Engineers can guide less-experienced peers, (5) Engineers need to help their managers' business succeed, (6) Engineers can influence decision-makers in their organizations, and (7) Everyone should be interested in building the character (Morse et al., 2014).

Management skills can be a success or a failure. That is why the Continuing Professional Development (CPD) Act of 2016 is being enacted through R.A. 10912. The CPD ensures the enhancement of skills of professionals by attending training and seminars.

Management skills form the vehicle by which management strategy, management practice, tools and techniques, personality attributes, and style work to produce effective outcomes in organizations. Management skills, in other words, are the building blocks upon which effective management rests. It is how managers translate their style, strategy, and favorite tools or techniques into practice (Whetten, Cameron, & Woods, 2007).

Management is a challenging job. It requires certain skills to be accomplished, and it is such a challenge. Thus, essential skills that every manager needs for doing better management are called as managerial skills. According to Katz, there are three managerial skills, viz.: conceptual skills, human relations skills, and technical skills. However, the degree (amount) of these skills required varies (changes) from levels of management and from an organization to an organization. These include conceptual skills, human relations skills, technical skills, communication skills, administrative skills, leadership skills, problem-solving skills, and decision-making skills (Akrani, 2011).

Management skills are behavioral and not personality attributes or stylistic tendencies. It has sets of actions performed by an individual that leads to certain outcomes. Almandeel (2014) conducted a study to determine the impact of employees' personality traits in perceiving leadership styles and organizational attitude in Saudi Banking context. The findings indicated that high Conscientiousness (C) has an influence on increasing Job Satisfaction while the personality traits of high Neuroticism (N) and high Conscientiousness (C) have a positive and negative impact on Turnover Intention, respectively. The relationship between Conscientiousness (C) and Job Satisfaction is positively mediated by perceived Transactional Leadership style. Bauer & McAdams (2004) assumed the existence of two kinds of approaches to growth and personality development – extrinsic and intrinsic. Extrinsic development is primarily cognitive and revolves around one's ability to think complexly about one's life

goals, whereas intrinsic development is primarily emotional and revolves around one's ability to feel better one's life. De Guzman (2000) believed that personality traits and leadership skills are vital to the competence of the principals in leading their subordinates.

Amponsah and Asamani (2015) recommended that school managers should endeavor to know the traits of their subordinates and apply the appropriate leadership styles when dealing with them to bring about good interpersonal relationships and satisfaction at the workplace. In the study of Wishmath, S., Orr, D., and Zhong, M. (2014) to determine the student perception of problem-solving skills, they reported that students increased communication skills, awareness of the importance of problem-solving skills in their major, and significantly increased confidence in their problem-solving abilities. They demonstrated a strong awareness of how the skills they acquired transfer to both academic and real-world environments.

A similar definition is expressed by Follet that management is the art of getting things done through people. This statement calls attention to the fact that managers achieve organizational goals by arranging for others to perform whatever tasks may be necessary – not by performing the tasks themselves (Stoner & Freeman, 1992).

Managing people can be a difficult one, especially if one does not have the needed skills. Possessing these skills is necessary for the success of an institution or a company. It is observed that there are engineers who are managers in the industry and the academe. It is in this context that the researcher wants to know the management skills of professional engineers in the industry and the academe in the Samar Island: basis for the formulating a management manual. Hence, this study was made.

OBJECTIVES OF THE STUDY

The study determines the management skills of professional engineers in the industry and in the academe in Samar Island: basis for formulating a management manual. Specifically, it seeks to: (1) determine the personality traits of the professional engineers in terms of: openness, conscientiousness, extraversion, agreeableness, and neuroticism; (2) assess the level of management skills of the professional engineers in the industry and in the academe in terms of: conceptual skills, human relation skills, technical skills, communication skills, Administrative Skills, leadership skills, problem-solving skills, and decision-

making skills; (3) find out the management performance of the professional engineers in the industry and in the academe, in terms of: planning, directing, influencing, and controlling; (4) determine the significant relationship between the socio-demographic profile of professional engineers and management skills; (5) determine the significant relationship between the socio-demographic profile of professional engineers and management performance; (6) determine the significant relationship between personality traits and management skills; (7) determine the significant relationship between personality traits and management performance; (8) determine the significant relationship between management skills and management performance; (9) determine the significant difference in management skills between the professional engineers in the industry and in the academe; and (10) determine the significant difference in management performance between the professional engineers in the industry and in the academe.

METHODOLOGY

Research Design

This study used a descriptive correlational method of research. Descriptive method was used to determine the personality traits; the level of management skills in terms of conceptual skills, human relations skills, technical skills, communication skills, administrative skills, leadership skills, problem-solving skills, and decision-making skills; and management performance in terms of planning, directing, influencing, and controlling. The correlational method was used to identify the significant relationship between the socio-demographic profile and management skills; the significant relationship between the socio-demographic profile and management performance; the significant relationship between personality traits and management skills; the significant relationship between personality traits and management performance; the significant relationship between management skills and management performance. Likewise, the significant difference in management skills between the professional engineers in the industry and the academe; and significant difference in management performance between the professional engineers in the industry and the academe.

Participants

The participants of this study include the forty-five (45) professional engineers in the academe in the four (4) State Universities and Colleges (SUCs),

namely: University of Eastern Philippines (UEP) system, Northwest Samar State University (NwSSU) system, Samar State University (SSU), and Eastern Samar State University (ESSU) system. Likewise, in the industry which includes ninety-seven (97) professional engineers working in the Department of Public Works and Highways (DPWH), National Irrigation and Administrations (NIA), Provincial Engineering Office (PEO), Municipal Engineering Office (MEO), Electrical Cooperative (EO) and Construction Industry. This will be conducted during 2018.

Similarly, the nineteen (19) immediate supervisors and the three hundred seventy-eight (378) staff and/or fifth year engineering students (BSAE, BSCE, BSEE, and BSME) were also respondents of this study. This is to elicit data on the personality traits, management skills, and management performance of the professional engineers.

Instrumentation

The study utilized two sets of a questionnaire to gather the necessary data. The first set is intended for the professional engineer respondents. It consists of four parts. Part I contains the socio-demographic profile of the professional-engineer respondents such as position, seminars/training attended, educational attainment, and work experience; Part II focused on the personality traits in terms of openness, conscientiousness, extraversion, agreeableness, and neuroticism; Part III constitutes the management skills in terms of conceptual skills, human relations skills, technical skills, communication skills, administrative skills, leadership skills, problem-solving skills, and decision-making skills; and part four was the management performance which contains planning, directing, influencing, and controlling.

The second set of questionnaires was intended for the immediate supervisor and students/stakeholders. It consisted of three parts. The first part was the personality traits of professional engineers; the second parts were the management skills, which consists of conceptual skills, human relations skills, technical skills, communication skills, administrative skills, leadership skills, problem-solving skills, and decision-making skills; and the third part was the management function which consists of planning, directing, influencing, and controlling.

The data on the "Big Five" personality traits were measured. The study used the NEO-FFI personality inventory, the NEO-FFI, which consists of 60 self-report items. The scores produce a dimensional profile of the five personality traits; this part of the questionnaire was designed to take about 15 minutes to

fill out. Participants were instructed to evaluate the extent to which they agreed or disagreed with each statement on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). A measure of overall personality type was found by calculating the means of each personality dimension; means of the Openness to experience sub-scale (O), means of the Conscientiousness sub-scale (C), means of the Extraversion sub-scale (E), means of the Agreeableness sub-scale (A) and means of the Neuroticism sub-scale (N). Then, the grand mean was ranked based on their results, as to the management skills the following scale and interpretation statement on a five-point Likert scale, ranging from 1 (never) to 5 (always). And to the management performance in terms of planning, directing, influencing, and controlling the following scale and interpretation statement on a five-point Likert scale ranging from 1 (poor) to 5 (outstanding).

The data and information were gathered using questionnaires. Part I of the questionnaire is the socio-demographic profile of the respondents; Part II is the personality traits patterned from Almandeel (2014); Part III is the management skills such as conceptual skills and technical skills patterned from Nohay (2001), human relations skills patterned from Lopez (1999), communication skills and problem-solving skills patterned from Whetten, Cameron, and Woods (2007), administrative skills patterned from Lopez (1999), leadership skills and decision-making skills patterned from Salvador (2000); and Part IV is the management performance in terms of planning patterned from Salvador (2000), directing and controlling patterned from MG2351, and influencing patterned from TLD Consultancy Ltd (2012).

The instrument was reviewed by the adviser to suit to the present study. These questionnaires were subjected to critiquing by experts on instrumentation in the locality. To ensure the validity and reliability of the instruments, these were pretested to professional engineers who were in the academe and industry, particularly in the nearby island, the Leyte Island. This was done to help the researcher determine their correctness and reliability in eliciting the needed data sets. The revised and improved instruments were the ones administered to the respondents.

Data Gathering Procedure

The gathering of the data was done in the following procedure: (a) the researcher asked permission from the dean of graduate studies to conduct and distribute the questionnaire. Upon approval, the researcher personally distributed and administered the research questionnaire to the respondents, and (b) then

after conducting and retrieving the questionnaires answered by the respondents, the responses were gathered, tabulated, analyzed, and interpreted.

Statistical Analysis

The data gathered were scored, tallied, tabulated, and analyzed based on frequency counts and percentages and weighted mean. Pearson's correlation coefficient r was adopted to find a significant relationship between the dependent and independent variables. T-test was used to find the significant difference in management performance and management skills between the professional engineers in the industry and the academe. Statistical Packages for the Social Sciences (SPSS) software was used in the analysis of this study. A 0.05 margin of error level was used in testing the hypothesis.

RESULTS AND DISCUSSION

As to the level of personality traits of the professional engineers, the findings revealed that among the five factors, 'conscientiousness' was more dominant personality traits and was rated as 'high extent.' This means that the professional engineers did their work thoroughly, achieved their aims and purpose through hard work, and they kept their properties clean and tidy. This is similar to the study of Tenedero (2016), which affirms that openness and extraversion were 'high extent' in the immediate supervisors. This is also affirmed in the study of Almandeel (2014) that high Conscientiousness (C) of leadership style which influences on increasing Job Satisfaction and Transformational or Transactional.

Table 1. Level of Personality Traits of the Professional Engineers

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
O (Openness)						
S/he likes to dive in daydreaming.	3.12	Average extent	2.67	Average extent	2.89	Average extent
When s/he gets a true way to do something, s/he continues on the way through.	4.09	High extent	3.73	High extent	3.91	High extent
S/he tends to appreciate artistic works and landscapes.	4.40	Very High extent	4.44	Very High extent	4.42	Very High extent
S/he thinks that listening to debate has no benefit except confusing and misleading ideas.	2.94	High extent	2.79	Average extent	2.87	Average extent
Reading poetry does not attract him/her.	3.20	Average extent	3.03	Average extent	3.12	Average extent
S/he often seeks a lot to experience new dishes.	3.82	High extent	3.44	High extent	3.63	High extent
S/he rarely notices that environmental changes could impact on my mode.	3.74	High extent	3.43	High extent	3.59	High extent
S/he has few artistic interests.	3.62	High extent	3.12	Average extent	3.37	Average extent
S/he thinks religion is important to guide his manners.	4.31	Very High extent	4.03	High extent	4.17	High extent
S/he likes reading a lot.	3.19	Average extent	3.34	Average extent	3.26	Average extent
S/he enjoys contemplating abstract theories and ideas.	3.98	High extent	4.20	Very High extent	4.09	High extent
It is easy to make him/her laugh.	4.17	High extent	4.71	Very High extent	4.44	Very High extent
Grand Mean		3.65			High Extent	

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
C (Conscientiousness)						
S/he keeps his/her properties clean and tidy.	4.27	Very High extent	4.45	Very High extent	4.36	Very High extent
S/he is keen on achieving his/her tasks on time.	4.41	Very High extent	4.10	High extent	4.25	Very High extent
S/he thinks s/he does not keep discipline well.	2.85	Average extent	2.63	Average extent	2.74	Average extent
S/he takes care of achieving s/he works accurately.	4.20	Very High extent	4.27	Very High extent	4.23	Very High extent
S/he tends to plan his/her aims to achieve his/her ambitions.	4.26	Very High extent	3.99	High extent	4.12	High extent
S/he wastes much time before performing any work.	2.56	Low Extent	1.98	Low Extent	2.27	Low Extent
S/he works hard to achieve his/her aims.	4.30	Very High extent	4.31	Very High extent	4.31	Very High extent
If s/he is committed to his work, s/he perseveres until the task is finished.	4.21	Very High extent	4.36	Very High extent	4.29	Very High extent
S/he may let others' trust down.	3.00	Average extent	2.95	Average extent	2.97	Average extent
S/he is productive and finishes his/her work well	4.34	Very High extent	4.34	Very High extent	4.34	Very High extent
S/he is organized	3.91	High extent	4.19	High extent	4.05	High extent
S/he will use circumventing techniques to achieve what s/he wants when necessary.	3.91	High extent	3.98	High extent	3.95	High extent
Grand Mean		3.82			High Extent	

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
E (Extraversion)						
S/he likes people to get around herself/himself.	3.88	High extent	3.39	Average extent	3.64	High extent
Funny situation excites him/her and s/he cannot control her/his self.	3.58	High extent	3.62	High extent	3.60	High extent
S/he considers herself/himself annoying.	2.50	Average extent	2.08	Low Extent	2.29	Low Extent
S/he enjoys talking to others.	4.14	High extent	3.47	High extent	3.80	High extent
S/he tends to active places (i.e., shopping center, entertainment cities, etc.)	2.98	Average extent	2.79	Average extent	2.88	Average extent
S/he prefers to do things alone.	3.66	High extent	3.95	High extent	3.80	High extent
S/he usually feel energetic and active.	4.23	Very High extent	4.27	Very High extent	4.25	Very High extent
S/he is pessimistic in general.	3.35	Average extent	2.95	Average extent	3.15	Average extent
His/her life runs very quickly.	3.68	High extent	3.26	High extent	3.47	High extent
S/he is a person full of energy.	4.15	High extent	4.38	Very High extent	4.27	Very High extent
S/he prefers to do his/her work by him/herself, instead of leading others	3.54	High extent	3.86	High extent	3.70	High extent
S/he prefers to do things efficiently.	4.27	Very High extent	4.39	Very High extent	4.33	Very High extent
Grand Mean		3.61			High Extent	

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
An (Agreeableness)						
S/he tries to be nice with everyone s/he meets.	4.25	Very High extent	3.98	High extent	4.12	High extent
S/he makes a lot of debate with his/her family and at work.	2.75	Average extent	2.90	Average extent	2.82	Average extent
Some people think that s/he is selfish and conceited.	2.71	Average extent	2.11	Low Extent	2.41	Low Extent
S/he prefers cooperating with others to competing them.	3.58	High extent	3.84	High extent	3.71	High extent
S/he tends to doubt others' intentions.	3.17	Average extent	2.86	Average extent	3.01	Average extent
It is easy to take advantage of him/her with his/her awareness.	3.17	Average extent	2.73	Average extent	2.95	Average extent
Almost everyone knows him/her and likes him/her.	3.57	High extent	3.90	High extent	3.73	High extent
S/he is usually described as a cold yet responsible person	3.81	High extent	3.96	High extent	3.89	High extent
S/he adheres to her/his opinions strictly.	3.61	High extent	3.90	High extent	3.75	High extent
S/he takes care of others' feelings and pains	4.37	Very High extent	4.27	Very High extent	4.32	Very High extent
S/he expresses herself/himself feeling to others even if negative ones	3.34	Average extent	3.27	Average extent	3.31	Average extent
S/he is a deep thinker.	4.13	High extent	4.21	Very High extent	4.17	High extent
Grand Mean		3.50			High Extent	

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
N(Neuroticism)						
S/he considers her/himself a tense person.	2.99	Average extent	2.56	Low Extent	2.78	Average extent
S/he feels that s/he is less social status than others.	2.64	Average extent	2.38	Low Extent	2.51	Low Extent
Sometimes s/he feels depressed if s/he is in stressful conditions.	3.60	High extent	3.05	Average extent	3.33	Average extent
S/he rarely feels lonely or depressed.	3.21	Average extent	2.45	Low Extent	2.83	Average extent
S/he feels nervous and worries a lot.	2.85	Average extent	2.63	Average extent	2.74	Average extent
S/he sometimes feels valueless.	3.01	Average extent	2.30	Low Extent	2.66	Average extent
S/he rarely feels afraid or worries.	2.95	Average extent	2.83	Average extent	2.89	Average extent
S/he sometimes gets angry about how others deal with him/her.	3.32	Average extent	3.28	Average extent	3.30	Average extent
S/he may feel low energetic when matters get worse.	3.10	Average extent	2.34	Low Extent	2.72	Average extent
S/he rarely feels depressed or sad.	3.12	Average extent	2.79	Average extent	2.96	Average extent
S/he need help from others to solve his/her problems.	3.64	High extent	3.28	Average extent	3.46	High extent
Sometimes s/he feels shy and inhibited.	3.77	High extent	3.27	Average extent	3.52	High extent
Grand Mean		**3.03**			**Average Extent**	

The level of management skills of the professional engineers in the industry and the academe got a computed average grand mean of 4.09, interpreted as "very good.' Professional engineers recognized the effort of the students/stakeholders when the assigned task was done well by allowing students/stakeholders to present their problems. These findings are similar to the study of Shuayto (2013), the management skills desired by business school deans and employees: an empirical investigation was prioritizing skills and designing coursework to incorporate top-ranked skills viewed as most important by business and industry leaders.

Table 2. Level of Management Skills of the Professional Engineer Respondents in the Industry and the Academe

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
A. Conceptual Skills.						
1. Possessing endurance & emotional balance.	4.15	Very Good	3.98	Very Good	4.07	Very Good
2. Observing promptness in performing official functions.	4.26	Excel-lent	4.19	Very Good	4.23	Excel-lent
3. Wearing appropriate attire.	4.33	Excel-lent	4.23	Excellent	4.28	Excel-lent
4. Communicating ideas clearly and correctly.	4.26	Excel-lent	4.22	Excellent	4.24	Excel-lent
5. Showing sensitivity to students/stakeholders' needs.	4.11	Very Good	3.98	Very Good	4.05	Very Good
6. Confronting students/ stakeholders tactfully.	3.87	Very Good	3.87	Very Good	3.87	Very Good
Grand Mean		4.12			Very Good	
	Academe		Industry		Average Mean	
B. Human Relation Skills	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
1. Keeps informed on how stakeholders are thinking and feeling.	4.11	Very Good	4.20	Excellent	4.15	Very Good
2. Encourages others to express their ideas and opinions.	4.22	Excel-lent	4.11	Very Good	4.16	Very Good
3. Listens with under-standing and purpose.	4.06	Very Good	3.73	Very Good	3.90	Very Good
4. Accepts criticisms from others.	4.22	Excel-lent	3.86	Very Good	4.04	Very Good
5. Handles questions promptly.	4.31	Excel-lent	4.20	Excellent	4.25	Excel-lent
6. Informs students/ stakeholders on chang-es in policies and pro-cedures affecting their work.	4.18	Very Good	4.12	Very Good	4.15	Very Good

7. Recognizes and appreciates stakeholder accomplishments and exemplary performance.	4.18	Very Good	4.13	Very Good	4.15	Very Good
8. Explain the "why" of decisions.	4.34	Excel-lent	4.20	Excellent	4.27	Excel-lent
9. Makes a significant contribution to the meeting.	3.97	Very Good	3.87	Very Good	3.92	Very Good
10. Expresses self-clearly and efficiently in writing and speaking.	4.15	Very Good	4.09	Very Good	4.12	Very Good
11. Tactfully explains to people that their department is not a separate entity but is a part of the whole organization.	3.96	Very Good	3.81	Very Good	3.88	Very Good
12. Encourages students/ stakeholders to get together and work on common problems.	4.29	Excel-lent	4.22	Excellent	4.26	Excel-lent
13. Inspires students/ stakeholders to contribute their ideas for the good of the company.	4.47	Excel-lent	4.33	Excellent	4.40	Excel-lent
14. Welcomes related interference with other departments.	4.21	Excel-lent	3.99	Very Good	4.10	Very Good
15. Disseminates to people worthwhile things learned from other departments.	4.18	Very Good	4.07	Very Good	4.12	Very Good
16. Enlighten students/ stakeholders that competition is related to excellence.	3.74	Very Good	3.76	Very Good	3.75	Very Good
17. Emphasizes cooperation as an instrument of a cohesive and successful organization.	4.26	Excel-lent	4.05	Very Good	4.15	Very Good

18. Defines a job assigned to a group to develop in their challenge and efficiency.	4.19	Very Good	3.96	Very Good	4.08	Very Good
19. Invokes students/ stakeholders in getting work objectives and schedules.	3.93	Very Good	3.96	Very Good	3.94	Very Good
20. Consults the group on important matters before implementation.	4.49	Excel-lent	4.23	Excellent	4.36	Excel-lent
Grand Mean		4.11			Very Good	
C. Technical Skills	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. Developing plans for the organization using the latest and appropriate technology.	4.12	Very Good	4.21	Excellent	4.16	Very Good
2. Scheduling of activities, assigning workload, and other related activities.	4.34	Excel-lent	4.26	Excellent	4.30	Excel-lent
3. Problem-solving.	4.22	Excel-lent	4.29	Excellent	4.26	Excel-lent
4. Developing a competency-based implementation strategy.	4.10	Very Good	4.14	Very Good	4.12	Very Good
5. Communicating plans and activities to the co-engineers/colleague.	4.07	Very Good	4.19	Very Good	4.13	Very Good
6. Preparing audio-visual resources during meetings and seminars.	3.93	Very Good	3.78	Very Good	3.85	Very Good
7. Advising students/ stakeholders on their career plans.	3.93	Very Good	3.80	Very Good	3.86	Very Good
8. Applying various concepts of vocational instruction to supervising personnel.	3.82	Very Good	3.60	Very Good	3.71	Very Good

9. Use of Information Communication Technology (ICT) in carrying out Managerial tasks.	3.88	Very Good	3.73	Very Good	3.80	Very Good
10. Use of educational technology (i.e., OHP, multimedia, slide Projector, etc.)	4.09	Very Good	3.60	Very Good	3.84	Very Good
Grand Mean		4.00			Very Good	
D. Communication Skills	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. I or s/he can speak English fluently.	3.93	Very Good	3.75	Very Good	3.84	Very Good
2. I or s/he can write English effectively.	4.05	Very Good	3.95	Very Good	4.00	Very Good
3. I or s/he can speak other foreign languages aside from English.	2.18	Fair	1.76	Poor	1.97	Fair
4. I or s/he can write another foreign language proficiently aside from English.	1.74	Poor	1.65	Poor	1.69	Poor
5. I or s/he can use vocabulary which is understood by the clientele	3.82	Very Good	3.86	Very Good	3.84	Very Good
6. I or s/he can use several bodily gestures to convey meaning.	3.89	Very Good	3.64	Very Good	3.76	Very Good
7. Gives clear directions and explanations.	4.11	Very Good	4.22	Excellent	4.16	Very Good
8. Motivate the students/ stakeholders to ask questions.	4.10	Very Good	4.15	Very Good	4.12	Very Good
9. I or s/he can use questions that lead students/stakeholders to analyze, synthesize, and think critically.	3.94	Very Good	4.02	Very Good	3.98	Very Good

10. Ask students/stakeholders to elaborate on answers or ideas.	3.88	Very Good	3.97	Very Good	3.92	Very Good
11. Provides feedback to clientele on their performance.	3.83	Very Good	3.88	Very Good	3.86	Very Good
Grand Mean		3.56			Very Good	
E. Administrative Skills	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. Checks a yearly action plan.	3.97	Very Good	3.87	Very Good	3.92	Very Good
2. Plans with students/ stakeholders' activities and make decisions.	4.16	Very Good	3.98	Very Good	4.07	Very Good
3. Recognizes students'/ stakeholders' abilities and achievements.	4.15	Very Good	4.08	Very Good	4.12	Very Good
4. Ensures that the office is implemented.	4.09	Very Good	4.16	Very Good	4.12	Very Good
5. Accepts the fact that students/stakeholders have problems that may affect their work.	4.00	Very Good	4.01	Very Good	4.00	Very Good
6. Builds teamwork among students/ stakeholders.	4.29	Excel-lent	4.28	Excellent	4.28	Excel-lent
7. Inspires students/ stakeholders to work hard towards their goal.	4.27	Excel-lent	4.23	Excellent	4.25	Excel-lent
8. Tries to solve problems brought to them by the students/stakeholders.	4.14	Very Good	4.14	Very Good	4.14	Very Good
9. Lets students/ stakeholders know exactly what is expected of them.	3.97	Very Good	4.07	Very Good	4.02	Very Good
10. Consults students/ stakeholders on important matters concerning the activities.	4.15	Very Good	4.23	Excellent	4.19	Very Good

11. Gives constructive feedback about every activity.	3.91	Very Good	4.11	Very Good	4.01	Very Good
12. Sends or recommend students/ stakeholders to relevant in-service training seminars or workshop.	3.94	Very Good	3.92	Very Good	3.93	Very Good
13. Resolves students/ stakeholder complaints and grievances.	3.91	Very Good	3.95	Very Good	3.93	Very Good
14. Allows reactions/ suggestions/ feedback from the students/ stakeholder.	4.17	Very Good	4.22	Excellent	4.19	Very Good
15. Listens attentively to all problems met by my colleague.	4.15	Very Good	4.28	Excellent	4.22	Excel-lent
16. Disseminates pertinent information regarding memoranda, routers, and other forms of written communications.	4.14	Very Good	4.22	Excellent	4.18	Very Good
17. Evaluates students'/ stakeholders' performance accurately.	3.97	Very Good	4.15	Very Good	4.06	Very Good
18. Provides immediate feedback on students/ stakeholders' performance.	4.07	Very Good	4.17	Very Good	4.12	Very Good
19. Says "thank you" to students/ stakeholders who perform well in assigned tasks.	4.37	Excel-lent	4.65	Excellent	4.51	Excel-lent
Grand Mean		4.12			Very Good	
F. Leadership Skills	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
1. Reasonably implement-ting bureau policies and regulations.	4.19	Very Good	4.10	Very Good	4.15	Very Good
2. Acting with authority.	4.17	Very Good	4.14	Very Good	4.15	Very Good

3. Allowing students/ stakeholders to present their problems.	4.21	Excel-lent	4.36	Excel-lent	4.28	Excel-lent
4. Attending to reports and correspondence.	4.22	Excel-lent	4.24	Excel-lent	4.23	Excel-lent
5. Discharging effectively the routine functions of the office.	3.99	Very Good	4.22	Excel-lent	4.11	Very Good
6. Consulting students/ stakeholders and colleagues on controversial matters.	4.12	Very Good	3.99	Very Good	4.06	Very Good
Grand Mean		4.16			Very Good	
G. Problem-Solving Skills	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
1. Can identify the problem.	4.35	Excel-lent	4.37	Excel-lent	4.36	Excel-lent
2. Explore alternatives.	4.39	Excel-lent	4.35	Excel-lent	4.37	Excel-lent
3. Select alternatives.	4.29	Excel-lent	4.37	Excel-lent	4.33	Excel-lent
4. Implement the solutions.	4.42	Excel-lent	4.45	Excel-lent	4.44	Excel-lent
5. Evaluate the situation.	4.40	Excel-lent	4.40	Excel-lent	4.40	Excel-lent
Grand Mean		4.38			Excellent	
H. Decision-Making Skills	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
1. Conducts a thorough investigation before the decision is made.	4.27	Excel-lent	4.30	Excel-lent	4.28	Excel-lent
2. Executes fairness in dealing with students/ stakeholder complaints.	4.32	Excel-lent	4.23	Excel-lent	4.27	Excel-lent
3. Involves students/ stakeholders in deciding for agency development.	4.30	Excel-lent	4.11	Very Good	4.21	Excel-lent
4. Considers alternative for a wiser decision.	4.39	Excel-lent	4.33	Excel-lent	4.36	Excel-lent

5. Reserves the right for the final decision on issues in the conflict.	4.29	Excel-lent	4.11	Very Good	4.21	Excel-lent
Grand Mean		4.27			Excellent	
Average Grand Mean		4.09			Very Good	

The level of management performance of the professional engineers got a computed average grand mean of 4.17 interpreted as "very satisfactory." This means that professional engineers planned their activities and ensured coordination based on the institutions/agency's mission statement and objectives/ thrust. As postulated by Escobar (2007), the management skills of educational managers in terms of planning, organizing, directing, and controlling was found to be 'high.' This is also confirmed to the study of Musingafi (2014) that classical management functions were found to be useful and practiced at Mapakomhere Rural Day Secondary School in Masvingo district.

Table 3. Level of Management Performance of the Professional Engineer Respondents in the Industry and the Academe

Item	Academe		Industry		Over-all Mean	
	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation	Weighted Mean	Interpre-tation
A. Planning.						
1. Plans activities based on Agency mission statement and objectives/ thrust.	4.35	Outstan-ding	4.38	Outstan-ding	4.36	Outstan-ding
2. Plans activities based on the strengths and weaknesses of the agency/company.	4.16	Very Satisfac-tory	4.22	Outstan-ding	4.19	Very Satisfac-tory
3. Seeks engineers'/ supervisors' participation in planning.	4.25	Outstan-ding	4.30	Outstan-ding	4.27	Outstan-ding
4. Considers feedback to reinforce planning	4.20	Outstan-ding	4.24	Outstan-ding	4.22	Outstan-ding
5. Values suggestions from supervisor and engineer in charge.	4.34	Outstan-ding	4.32	Outstan-ding	4.33	Outstan-ding

6. Sees to it that the plans of the agency/company are clearly understood by engineers in charge.	4.29	Outstanding	4.45	Outstanding	4.37	Outstanding
7. Plans are within the budget.	4.15	Very Satisfactory	4.42	Outstanding	4.29	Outstanding
8. Plans use SMART (Specific, Measurable, Achievable, Realistic, and Timely).	4.22	Outstanding	4.30	Outstanding	4.26	Outstanding
Grand Mean		4.29			Outstanding	
B. Directing	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. Initiates action with his/her staff/ stakeholders / students.	4.24	Outstanding	4.34	Outstanding	4.29	Outstanding
2. Ensures coordination in the agency or company.	4.33	Outstanding	4.47	Outstanding	4.40	Outstanding
3. Improves efficiency.	4.17	Very Satisfactory	4.54	Outstanding	4.36	Outstanding
4. Facilitates change.	4.16	Very Satisfactory	4.38	Outstanding	4.27	Outstanding
5. Assists stability and growth.	4.25	Outstanding	4.35	Outstanding	4.30	Outstanding
Grand Mean		4.32			Outstanding	
C. Influencing	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. I or s/he often delegates important tasks to others even when there is a risk that I or s/he will be personally criticized if they are not done well.	3.97	Very Satisfactory	3.82	Very Satisfactory	3.89	Very Satisfactory
2. I or s/he puts forward lots of ideas and plans.	3.99	Very Satisfactory	4.15	Very Satisfactory	4.07	Very Satisfactory

3. I or s/he is willing to be persuaded by others	3.93	Very Satisfactory	3.92	Very Satisfactory	3.93	Very Satisfactory
4. I or s/he often provides detailed plans to show how a task should be done.	4.07	Very Satisfactory	4.24	Outstanding	4.16	Very Satisfactory
5. I or s/he often suggests alternatives to the proposals which others have made.	4.16	Very Satisfactory	4.18	Very Satisfactory	4.17	Very Satisfactory
6. I or s/he shows sympathy towards others when they have difficulties.	4.19	Very Satisfactory	4.29	Outstanding	4.24	Outstanding
7. If others become angry or upset, I or s/he tries/ tries to listen with understanding.	4.12	Very Satisfactory	4.26	Outstanding	4.19	Very Satisfactory
8. I or s/he defends my or his/her ideas energetically.	3.91	Very Satisfactory	4.20	Outstanding	4.06	Very Satisfactory
9. I or s/he often helps others to get a hearing.	3.76	Very Satisfactory	4.14	Very Satisfactory	3.95	Very Satisfactory
10. I or s/he frequently disregard the ideas of others in favor of my or his/her responses.	3.33	Satisfactory	3.21	Satisfactory	3.27	Satisfactory
11. I or s/he usually accept criticism without becoming defensive.	3.91	Very Satisfactory	3.86	Very Satisfactory	3.88	Very Satisfactory
12. I or s/he presents my or his/her ideas in a very organized way.	4.02	Very Satisfactory	4.07	Very Satisfactory	4.05	Very Satisfactory
13. I or s/he does not pretend to be confident when in fact I or s/he feel uncertain.	3.73	Very Satisfactory	3.99	Very Satisfactory	3.86	Very Satisfactory
14. I or s/he frequently draw attention to inconsistencies in the ideas of others.	3.65	Very Satisfactory	3.79	Very Satisfactory	3.73	Very Satisfactory

15. I or s/he often puts a lot of energy into arguing about what I or s/he does.	3.55	Very Satisfactory	3.63	Very Satisfactory	3.59	Very Satisfactory
Grand Mean		3.94		Very Satisfactory		
D. Controlling	Weighted Mean	Interpretation	Weighted Mean	Interpretation	Weighted Mean	Interpretation
1. Tailored to plans and positions.	4.09	Very Satisfactory	3.89	Very Satisfactory	3.99	Very Satisfactory
2. Tailored to individual managers and their responsibilities.	4.02	Very Satisfactory	3.94	Very Satisfactory	3.98	Very Satisfactory
3. Pointed up exceptions as critical points.	4.03	Very Satisfactory	4.04	Very Satisfactory	4.03	Very Satisfactory
4. Objective focused.	4.32	Outstanding	4.33	Outstanding	4.32	Outstanding
5. Flexible in giving orders.	4.20	Outstanding	4.24	Outstanding	4.22	Outstanding
6. Economical.	4.13	Very Satisfactory	4.29	Outstanding	4.21	Outstanding
7. Lead to corrective actions.	4.24	Outstanding	4.26	Outstanding	4.25	Outstanding
Grand Mean		4.14		Very Satisfactory		
Average Grand Mean		4.17		Very Satisfactory		

The relationship between the socio-demographic profile of the professional engineers in terms of position, and management skills in terms of administrative, leadership, and decision-making skills, was found 'significant'; as to the seminars/training attended – both technical and problem-solving skills were found significantly related; in educational attainment, only administrative skills were found significant; and about work experience – the human relation, communication, and leadership skills, it was found 'significant.' It was confirmed in the study of Yossef and Rakha (2017) that there is a high level of efficiency on personal and administrative skills for managerial leadership on administrative creativity. This means that professional engineers listen with understanding and purpose, give clear directions and explanations to subordinates or students, and allow presenting their problems, which affirm to the study of Escobar (2007)

length of service were significantly affected in the production. Likewise, in the study of Nohay (2001) showed that administrative service is significant to managerial skills.

Table 4. Test of Relationship between the Socio-Demographic Profile of the Professional Engineers and Management Skills

Demographic Profile	Parameters	Management Skills							
		Decision Making Skills	Problem-Solving Skills	Leadership Skills	Administrative Skills	Communication Skills	Technical Skills	Human Relation Skills	Conceptual Skills
Position	Pearson r	0.7230	0.1000	0.291	-0.593	0.101	0.074	0.0734	0.0823
	Significance	0.0030	0.0932	0.005	0.001	0.0934	0.333	0.242	0.423
	Interpretation	Sign.	Not Sign.	Sign.	Sign.	Not Sig.	Not Sig.	Not Sig.	Not Sig.
Seminars/ Training Attended	Pearson r	0.101	0.397	0.0745	-0.098	0.0989	0.293	0.101	0.101
	Significance	0.32	0.004	0.3333	0.3333	0.342	0.024	0.092	0.0928
	Interpretation	Not Sig.	Sign.	Not Sig.	Not Sig.	Not Sig.	Sign.	Not Sig.	Not Sig.
Educational Attainment	Pearson r	0.1020	0.0742	0.0093	0.339	0.102	0.092	-0.092	0.088
	Significance	0.333	0.381	0.356	0.0112	0.088	0.310	0.310	0.129
	Interpretation	Not Sig.	Not Sig.	Not Sig.	Sign.	Not Sig.	Not Sig.	Not Sig.	Not Sig.
Work Experience	Pearson r	0.1111	0.0870	0.492	0.107	0.581	0.1011	0.581	0.1002
	Significance	0.423	0.362	0.011	0.1133	0.0345	0.338	0.001	0.0899
	Interpretation	Not Sig.	Not Sig.	Sign.	Not Sig.	Sign.	Not Sig.	Sign.	Not Sig.

* Not significant
** Significant

As to the relationship between a socio-demographic profile in terms of positions, and management performance, in terms of planning and control, it was found 'significant'; about the seminars/training attended, the management performance in terms of planning, directing, and controlling was found 'significant'; in terms of educational attainment, all the parameters were found 'not significant'; while work experience, planning and controlling were found

'significant.' These findings are similar to the study of Escobar (2007) in which she found controlling significantly related to the management skills, professionalism, and performance of educational managers. Also, these findings were confirmed by Salvador (2000), who postulated that there were no significant relationships or differences when grouped as to age, sex, educational attainment, years in service, and civil status. Furthermore, this affirms with the study of Escobar (2007) were the educational manager rendered ten years of service. Also, this was confirmed by the study of Musingafi (2014) that classical management functions were found to be useful and practiced.

Table 5. Test of Relationship between the Socio-Demographic Profile of the Professional Engineers and Management Performance

Demographic Profile	Parameters	Management Performance			
		Planning	Directing	Influencing	Controlling
Position	Pearson r	0.523	0.109	0.101	0.532
	Sig.(2-tailed)	0.011	0.422	0.109	0.002
	Interpretation	Sig.	Not Sig.	Not Sig.	Sig.
Seminars/ Training Attended	Pearson r	-0.523	0.523	0.117	0.723
	Sig.(2-tailed)	0.022	0.001	0.194	0.004
	Interpretation	Sig.	Sig.	Not Sig.	Sig.
Educational Attainment	Pearson r	0.123	0.121	0.099	0.121
	Sig.(2-tailed)	0.320	0.423	0.352	0.400
	Interpretation	Not Sig.	Not Sig.	Not Sig.	Not Sig.
Work Experience	Pearson r	0.523	0.092	0.103	0.523
	Sig.(2-tailed)	0.004	0.323	0.222	0.008
	Interpretation	Sig.	Not Sig.	Not Sig.	Sig.

* Not significant
** Significant

The relationship between personality traits and management skills, in openness - technical, and problem-solving skills, was found 'significant.' Conscientiousness types of personality traits found out that conceptual, human relation, communication, administrative, and leadership skills were 'significant.' In extraversion, leadership and problem-solving skills were found significant. As to the agreeableness, conceptual, human relation, leadership, problem-solving, and decision-making skills were found 'significant.' In the neuroticism, only

communication skills were found to be 'significant.' This was confirmed in the study of Tenedero (2016) that openness is significantly related to occupational competence and professional and personal characteristics. This also revealed in the study of Almandeel (2014) that high conscientiousness has great influence in increasing job satisfaction, likewise, noted that the bank employees had been described as having low stability with feelings of anger and depression, which leads them to interpret neutral situations as threats and exaggerate minor frustrations as serious difficulties; they also have trouble controlling their emotions. This is also by the study of De Guzman (2000) that personality traits and leadership skills of the private school principals in leading their subordinates are greatly influenced by their attitude and behavior.

Table 6. Test of Relationship between the Personality Traits and Management Skills

		Management Skills							
Personality Traits	Parameters	Decision Making Skills	Problem-Solving Skills	Leadership Skills	Administrative Skills	Communication Skills	Technical Skills	Human Relation Skills	Conceptual Skills
Openness	Pearson r	0.109	-0.338	0.118	0.385	0.111	0.408	-0.076	0.026
	Significance	0.422	0.012	0.066	0.440	0.084	0.002	0.286	0.714
	Interpretation	Not Sig.	Sign.	Not Sign	Not Sign	Not Sign	Sign.	Not Sign	Not Sign
Conscientiousness	Pearson r	0.103	0.1003	0.294	0.398	0.463	0.101	-0.485	0.583
	Significance	0.244	0.424	0.033	0.043	0.008	0.444	0.021	0.002
	Interpretation	Not Sign	Not Sign	Sign.	Sign.	Sign.	Not Sign	Sign.	Sign.
Extraversion	Pearson r	0.0591	0.181	0.724	0.083	0.111	0.0834	0.109	0.103
	Significance	0.491	0.045	0.003	0.440	0.090	0.452	0.243	0.310
	Interpretation	Not Sign	Sign.	Sign.	Not Sign	Not Sign	Not Sign	Not Sign	Not Sign
Agreeableness	Pearson r	0.498	0.545	0.399	0.103	0.088	0.0634	-0.395	0.392
	Significance	0.0111	0.000	0.0222	0.356.	0.429	0.309	0.0231	0.034
	Interpretation	Sign.	Sign.	Sign.	Not Sign	Not Sign	Not Sign	Sign.	Sign.
Neuroticism	Pearson r	0.110	0.044	0.0835	0.09	-0.422	0.121	0.102	0.0984
	Significance	0.434	0.398	0.424	0.44	0.0042	0.0831	0.320	0.329
	Interpretation	Not Sign	Not Sign	Not Sign	Not Sign	Sign.	Not Sign	Not Sign	Not Sign

* Not significant

** Significant

As to the relationship between personality traits and management performance; in openness - planning, directing, and influencing found 'significant'; conscientiousness - planning was significant to personality traits; about extraversion, - directing was found 'significant'; in agreeableness, – planning and influencing were found significantly related, and as to the neuroticism - all of the parameters in management performance were 'not significant.' This result is confirmed by the study of Tenedero (2016) that the personality types and performance of the immediate supervisor showing openness is significantly related to occupational competence and professional, personal characteristics, and help-seeking behavior is much helpful in dealing with their duties, particularly on management areas of occupation. Furthermore, this study is anchored to the study of De Guzman (2000) that the competence of the principals in leading their subordinates is greatly influenced by their attitude and behavior.

Table 7. Test of Relationship between the Personality Traits and Management Performance

Personality Traits	Parameters	Management Performance			
		Planning	Directing	Influencing	Controlling
Openness	Pearson r	0.387	-0.338	0.288	0.099
	Sig.(2-tailed)	0.032	0.012	0.044	0.390
	Interpretation	Significant	Significant	Significant	Not Significant
Conscientiousness	Pearson r	0.398	0.098	0.111	0.0888
	Sig.(2-tailed)	0.002	0.0882	0.352	0.422
	Interpretation	Significant	Not Significant	Not Significant	Not Significant
Extraversion	Pearson r	0.1012	0.777	0.121	0.0981
	Sig.(2-tailed)	0.2353	0.004	0.091	0.352
	Interpretation	Not Significant	Significant	Not Significant	Not Significant
Agreeableness	Pearson r	0.339	0.111	0.434	0.111
	Sig.(2-tailed)	0.021	0.345	0.005	0.315
	Interpretation	Significant	Not Significant	Significant	Not Significant
Neuroticism	Pearson r	0.109	0.121	0.003	0.099
	Sig.(2-tailed)	0.498	0.581	0.420	0.540
	Interpretation	Not Significant	Not Significant	Not Significant	Not Significant

* Not significant

** Significant

In the test of the relationship between management skills and management performance, findings revealed that conceptual, human relation, communication, administrative, and problem-solving skills were 'significant' to management performance in terms of planning; in directing, findings revealed that technical skills and administrative skills were 'significant'; about influencing, findings showed that communication, administrative, and leadership skills were 'significantly' related to management performance; and as to control, it was found that all the parameters in management skills were 'not significantly' related by management performance in terms of controlling. This finding is similar to the study of Escobar (2007) that management skills, professionalism, and profile of the respondents in combination affect their performance. Likewise, this affirms to the study of Musingafi (2014) classical management functions in the educational management processes, namely: planning, organizing, directing, staffing, and controlling were useful and practiced at Mapakomhere Rural Day Secondary School in Masvingo district and that controlling in terms of monitoring and evaluation can ensure the right direction in the attainment of set goals.

Table 8. Test of Relationship between the Management Skills and Management Performance

Management Skills	Parameters	Management Performance			
		Planning	Directing	Influencing	Controlling
Conceptual Skills	Pearson r	0.245	0.088	0.082	0.110
	Significance	0.002	0.310	0.231	0.250
	Interpretation	Sig.	Not Sig.	Not Sig.	Not Sig.
Human Relation Skills	Pearson r	0.330	0.1090	0.1111	0.0883
	Significance	0.021	0.0831	0.423	0.245
	Interpretation	Sig.	Not Sig.	Not Sig.	Not Sig.
Technical Skills	Pearson r	0.092	0.421	0.083	0.1011
	Significance	0.352	0.003	0.309	0.1049
	Interpretation	Not Sig.	Sig.	Not Sig.	Not Sig.
Communication Skills	Pearson r	0.492	0.0913	0.472	0.092
	Significance	0.004	0.333	0.005	0.0949
	Interpretation	Sig.	Not Sig.	Sig.	Not Sig.
Administrative Skills	Pearson r	0.294	-0.293	0.3952	0.107
	Significance	0.004	0.0133	0.008	0.0634
	Interpretation	Sig.	Sig.	Sig.	Not Sig.
Leadership Skills	Pearson r	0.101	0.0835	0.399	0.0882
	Significance	0.255	0.424	0.002	0.245
	Interpretation	Not Sig.	Not Sig.	Sig.	Not Sig.
Problems Solving Skills	Pearson r	0.337	-0.012	0.100	0.104
	Significance	0.008	0.398	0.0934	0.4223
	Interpretation	Sig.	Not Sig.	Not Sig.	Not Sig.
Decision Making Skills	Pearson r	0.103	0.0591	0.011	0.038
	Sig.(2-tailed)	0.099	0.491	0.523	0.510
	Interpretation	Not Sig.	Not Sig.	Not Sig.	Not Sig.

* Not significant
** Significant

As to the significant difference in management skills between professional engineers in the industry and the academe, it was found out that conceptual skills were interpreted 'significant.' This means that professional engineers in the academe or industry differed in their ability to coordinate and integrate organizations' interests and activities, in communicating ideas clearly and

correctly, in wearing appropriate attire, and promptness in performing official functions. This was confirmed to the study of Shuayto (2013) that "soft skills" vs. "hard skills" are significantly different in the mean rating of the importance among the prospective employers of MBA graduates. Nohay's (2001) study revealed that managerial skills were significantly different from the profile of the administrator in terms of age, educational attainment, experience, and in-service education.

Table 9. Test of Difference between the Management Skills between the Professional Engineers in the Industry and the Academe

Management Skills	Group	Mean	t-stat.	Sig.	Interpretation
Conceptual Skills	Industry Academe	3.64 4.13	-4.726	0.036	Significant
Human Relation Skills	Industry Academe	4.07 4.15	-0.668	0.505	Not Significant
Technical Skills	Industry Academe	3.96 3.87	0.749	0.455	Not Significant
Communication Skills	Industry Academe	3.38 3.49	-1.038	0.301	Not Significant
Administrative Skills	Industry Academe	4.02 3.97	0.480	0.632	Not Significant
Leadership Skills	Industry Academe	4.00 4.00	-0.016	0.988	Not Significant
Problems Solving Skills	Industry Academe	4.21 4.24	-0.294	0.769	Not Significant
Decision Making Skills	Industry Academe	4.28 4.30	-0.123	0.902	Not Significant

About the significant difference in management performance between professional engineers in the industry and the academe, findings revealed that all the parameters in management performance were interpreted 'not significant.' This means that the management performance of the professional engineers in the industry was not different from the management performance in the academe. This finding is similar to the study of Poso (2007) that the level of competence as rated by the civil engineers found out to be 'not significant.' This also affirmed in the study of Escobar (2007) that management skills, professionalism, and profile of the educational managers were found "sustained" in combination affect their performance.

Table 10. Test of Difference between the Management Performance between the Professional Engineers in the Industry and the Academe

Management Performance	Group	Mean	t-stat.	Sig.	Interpretation
Planning	Industry	4.26	0.274	0.784	Not Significant
	Academe	4.23			
Directing	Industry	4.23	0.878	0.382	Not Significant
	Academe	4.12			
Influencing	Industry	3.79	0.756	0.446	Not Significant
	Academe	3.71			
Controlling	Industry	3.99	-0.464	0.643	Not Significant
	Academe	4.04			

CONCLUSION

Professional engineers' personality traits 'conscientiousness' is rated as 'high extent.' This implies that professional engineers keep their properties clean and tidy, keen on achieving tasks on time, and work hard to achieve their aims, committed to their work, productive, and finishes tasks well, and they are organized, and they use circumventing techniques to achieve what they want.

The majority of professional engineers are 'very good' in management skills. This implies that respondents recognized the effort of the students/stakeholders when the assigned task performed well and by allowing students/stakeholders to present their problems. The majority of the professional engineers were 'very satisfactory' in management performance. This implies that management performance in terms of planning, directing, influencing, and controlling are very satisfactorily.

There is a significant relationship between the socio-demographic profile of the professional engineers and their management skills; it is significantly related to socio-demographic profile and management performance. As to the relationship between socio-demographic profile and management, the performance was found out significant. About the relationship between personality traits and management skills, it was found to be significant. Regarding the relationship between personality traits and management performance, some parameters were found significant. Management skills findings revealed that it was significantly related to management performance.

There is a significant difference between the two groups in management skills between professional engineers in terms of conceptual skills. This implies that the professional engineers in the academe or industry differ in their ability to coordinate and integrate organizations' interests and activities, in communicating ideas clearly and correctly, in wearing appropriate attire, and promptness in performing official functions. There is no significant difference in management performance between professional engineers in the industry and the academe. This implies that all the parameters in management performance were interpreted as 'not significant.' This only means that the management performance of the professional engineers in the industry is not different from the management performance in the academe.

TRANSLATIONAL RESEARCH

Part of this study is the formulation of the theory called 'triangulation management theory.' The focus is the professional engineers' management skills and management performance, and personality traits. Also, this study may help the institution to provide a career or development plan. The management skills, management performance, and personality traits, be part of the curriculum of engineering, specifically in the syllabus of the subject involved in engineering management and construction management. Encourage professional engineers to become members in organizations outside their respective institutions because this has something to do with their skills and performances. Professional engineers should have the ability to coordinate and integrate organizations' interests and activities, communicate ideas clearly and correctly, wear appropriate attire, and prompt in performing official functions. Pursue advanced education specifically in line with management so that professional engineers can gain knowledge and embrace new ideas in performing duties and responsibilities. Specifically, for industry, administrative skills should further be enhanced since it was the most highly significant among the parameters in management performance. Likewise, it is suggested that the industry should further coordinate and integrate organizations' interests and activities, in communicating ideas clearly and correctly, in wearing appropriate attire, and promptness in performing official functions. Lastly, add some variables in management performance, for example, delegating and staffing.

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