

# Matrix For Development And Validation Of Proposed Instrument On Leadership

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**Abstract:** Valid measures on leadership attributes of leaders are necessary tools for assessing the innate characteristics of leaders regardless of their cross-cultural biases and prejudices which results could be sound bases for the creation of relevant leadership skills enhancement programs. Premised on such awareness, this study systematically endeavored to develop a proposed educational leadership attribute scale (ELAS). A pool of 60 items was generated for the first draft of the proposed ELAS composed of three dimensions: leadership potential, leadership behavior and leadership traits. Four experts in the field of educational management were invited to validate the content; a content validity index of 0.98 was statistically established. A total of 301 school heads consented to be the respondents in which two were from a state university, four from private higher education institutions, and 295 from public primary and secondary schools. Exploratory Factor Analysis (EFA) rationalized the outcome of the proposed instrument. The strength and direction of a factor on measured variables eventually ensued to modify the previous layout of the variables into the following: leadership potential with five sub-dimensions resulted in the formulation of two factors (Factor 1 and 2); leadership behavior with two sub-dimensions resulted in the formation of only one factor (Factor 1), and leadership traits with no sub-dimension resulted in the creation of two factors (Factor 1 and 2). The EFA trimmed down the 60 items into 31 that represented all the variables being studied and uncovered the underlying relationship between the measured variables.

**Keywords:** content validity index, exploratory factor analysis, confirmatory analysis, educational leadership, leadership attributes.

## 1. Introduction

The success of any learning institution lies primarily in the hands of the stakeholders, in particular, the teachers and their leaders, with the latter playing critical roles beginning from goal formulation to the accomplishment of the same (Sharma, 2016). With studies supporting that leadership is a key to creating effective schools, there are qualities found that must be possessed and manifested by the leaders to make effective schools come about (Krasnoff, 2015; Reynolds, 2015; Sharma, 2016) [16] [33]. These top qualities include, among others, having a sense of mission, communicating high expectations, motivating and involving stakeholders in planning and decision making, with primary concern for teaching and instruction, building positive relationship in the workplace, and being hands-on in terms of staffing, monitoring and evaluating teaching performance and student achievement (Day & Sammons, 2016; Reynolds, 2015).

With leadership being the umbrella variable, the present study looked into some relevant definitions and theories about it, followed by the importance of leadership potential assessment and mechanisms on validation of assessment tools. Such theoretical background are necessary to guide interpretation of data in later sections of this research.

Leadership is defined as the art of influencing individual or group activities toward the achievement of the enterprise objectives (Bedeian, 1986). This definition implies that compliance as response of the subordinates is voluntarily practiced. Theories on leadership may be considered as initiatives to elaborate the insights on successful leadership (Medina, 2011) [19]. The trait theories of leadership, for example, state that leaders carry with them various common traits. Previous research focused on the traits of an individual that resulted in the identification of a wide array of personal attributes such as physical appearance, intelligence and self-confidence. Other research observed traits of individuals who occupy leadership positions. These attributes were

sociability, persistence, initiative, knowing how to get things done, self-confidence, alertness to and insights into situations, cooperativeness, popularity, adaptability and verbal facility (Badshah, 2012). Such qualities were further categorized thus giving a more general view of what good leaders have in common: extraversion, conscientiousness, openness and emotional intelligence.

Meanwhile, Northouse (2015) described the evolution of leadership. Accordingly, it started from the trait approach theories, the early trait theories were called eventually the "Great Man" theories. Powell, as cited in Hughes, Ginnett and Curphy (2006) stated that while tracing back the origin of the Great Man theory, research revealed that a leader is far more different from his or her followers in terms of "certain personality traits, physical attributes, intelligence, or personal values" [15]. It focused on the natural attributes of extraordinary leaders. After a while some researchers realized the inadequacy of the trait theory. A paradigm shift from trait theories to behavior theories took place (Medina, 2011) [19]. The behavioral theories of leadership upholds that leaders possess specific behaviors that are not seen to non-leaders.

Literature revealed four significant studies that support particular leadership behavior: (1) Ohio State University studies, (2) the University of Michigan studies, (3) the Yuki studies and the (4) Managerial Grid (Medina, 2011) [19] [45].

The Ohio State University studies sought to identify independent dimensions of leader behavior which were referred to as the initiating structure dimension and consideration dimension. Consideration dimension describes the degree to which the leader creates an environment of emotional support, warmth, friendliness, trust, approachability, looking out for the personal welfare of the group, keeping the group informed about new developments, and doing small favors for group members. Comparatively

speaking, initiating structure deals more on the role that the leader should play. Those with high initiating structure focus on goals and results. Clarifying expectations, scheduling of work, specifying procedures to be followed and assigning specific tasks are activities under the structure part of the dimension [19]. The overall findings of the study of Ohio State University indicate that successful leaders are those that are involved in both dimensions (Medina, 2011).

The University of Michigan Studies attempted to identify behavioral characteristics of leaders that indicate effectiveness, productivity and performance. A set of effectiveness criteria was identified: production for work hour or other similar measures of the organization's success in achieving its production goals, job satisfaction of members of the organization, turnover, absenteeism and grievance rates, costs, scrap loss, and an employee and managerial motivation. During the course of their studies, two distinct types of leadership were identified. These were the job-centered managers and employee-centered managers. The employee centered managers influence co-workers to be involved in goal setting and decision making. [19] The job-centered manager is geared towards standards at work, arranges tasks in orderly manner, supervise and inform workers on methods to be followed at work. The outcome of the study discovered that the most productive work groups preferred leaders who were employee-centered rather than the job-centered managers (Medina, 2011).

The Yuki studies, on the other hand, tries to seek the behavior of leaders for varying situations. Researchers of this study were able to identify nineteen behaviors and these are: performance emphasis, consideration, praise-recognition, decision-participation, training-coaching, problem solving, work facilitation, inspiration, structuring reward contingencies, autonomy-delegation, role clarification, goal setting, information dissemination, planning, coordinating, representation, interaction facilitation, conflict management, and criticism-discipline (Medina, 2011) [19] [45].

The fourth given studies, as Medina presented, is the Managerial Grid, developed by Robert Blake and Jane Mouton. This type is geared toward understanding the manager's concern for production and concern for people. Relatively, the behavioral approach is focused on the action-related aspect of the leader.

From trait to behavioral approach, situational approach existed where covered theories were Path-Goal Theory and Contingency Theory. This approach theorized that there is no one perfect approach that is said to be appropriate in all situations, different situations requires different leadership style (Northouse, 2015). A similar principle was pointed out in Medina (2011) stating that no theory would be applicable in all cases and situations and thus it is not appropriate to assume that there is specific theory for all situations. This led to the birth of the so-called Contingency Theory. Literature cited other several theories that are closely related to Situational Approach. As a more comprehensive type, the Situational Approach is grounded on several theories such as: Continuum of Leadership Behavior by Tannenbaum and Schmidt; the Contingency Leadership Model by Fiedler; the Path-Goal by House and Mitchell; the Hershey-Blanchard

Situational Leadership Theories; the Leader-Member Exchange Approach by Graen; the Normative Decision Model by Vroom and Jago and the Muczyk-Reimann Model (Medina, 2011) [19].

The implication brought about by the Situational Approach was further enhanced with the tandem of the leader and the follower in the Relational Approach Theory. It arose from the Leader Member Exchange theory or LMX theory which Medina (2011) cited as one component of Situational Approach to leadership [19]. The LMX postulates that high-quality relation generates more affirmative leader outcomes than that of the low-quality relations.

Realization of the former theories brought changes in the existing ideas, a more advanced concept was developed in the New Leadership approach which entails the visionary or charismatic leadership and transformational leadership theory. These theories proved leadership as a dynamic process that transforms organizations as well as human resources. Finally, the consolidation of all theories created the popular Emerging Leadership Approach in which Authentic Leadership, Spiritual Leadership and Servant Leadership are its core components. Authentic Leadership advocates the genuine attributes of a leader. Spiritual leadership focuses more on values integration. Servant Leadership is geared toward the caring principle where leaders act as servants to followers so that the latter may eventually become independent themselves (Northouse, 2015).

In relation to educational institution leadership, Razon (2007) identified the common characteristics of high performing schools. According to Razon, effective school leadership brings about high school performance. Effective school leadership is seen when there is a leader who is proactive, a leader who guides and nurtures the progress not only of the organization but also the cornerstone of the organization itself which are the people. It would be of a great advantage if there is the presence of a leader who knows how to strategize, and able to make the school climate conducive to learning, a leader that is able to harmonize and ensure that everybody is well taken care of in the organization (Razon, 2007)[29].

Leaders and leadership attributes are therefore important factors to be given attention since these maintain dynamism and sustainability in an organization [12]. English (2008) posits that as a social construct, leadership is composed of dynamic interrelationship between leaders and followers. Put together, these attributes are potent motivating factors that can be used as barometer to gauge where a certain industry, organization or institution is heading to.

Uriarte (2000) defined behavior as any action, feeling and thought of the individual in the workplace as affected by any psychological stimulus in the environment. He added that behavior can also be defined as a consciously and unconsciously learned action that the individual in the workplace manifests toward others. The study conducted by Uriarte (2000) found that wholesome behavior and misbehavior can cause a lasting effect in the performance of the individual in the workplace. Wholesome behavior promotes favorable responses from others while misbehavior

inflicts disturbance other people in the work place.

Studies also found that effective leadership behavior is multidimensional which implies that effective leaders demonstrate different behavior in different situations.[6] Results of the study showed two principal dimensions of leader behavior- consideration and initiating structure. In the study of Stogdill as cited in Bedeian (1986) conclusions concerning effective leader behavior were enumerated. With regard to consideration, these were the following findings: (1) employee satisfaction with a leader is dependent on the degree of consideration displayed by the leader; (2) leader consideration affects employee satisfaction more when jobs are unpleasant and stressful than when they are pleasant; (3) a leader who is high in consideration can exercise more initiating structure without a decline in employee satisfaction; and lastly (4) consideration given in response to good performance will increase the likelihood of future good performance. On the other hand, the following are the benefits of the initiating structure: (1) initiating structure by a leader that adds to role clarity will increase employee satisfaction; (2) initiating structure by a leader will decrease employee satisfaction when structure is already adequate; (3) initiating structure by a leader will increase performance when a task is unclear; and lastly, (4) initiating structure by a leader will not affect performance when a task is clear.

The major phases in leadership knowledge illustrate how leadership and leadership theories transformed from the simplest approach to the most complex. The cycle starts with the Trait Phase (450b.c.- 1940's); the Behavioral Phase is the second (1940's- 1960's); and the last is the Situation Phase (present).

Historical facts showed that trait is another important factor to consider as regards effective leadership (Bedeian, 1986). Trait is a distinctive physical or psychological characteristic that accounts for a person's behavior. This definition of trait led to the derivation of the view about greatness of a leader. Plato who is one of the great Greek philosophers of all times once cited "that great leaders were born to their greatness". This principle led to the conceptualization of the great man theory. This theory upholds "that individuals are born either with or without the necessary traits for successful leadership" (Bedeian, 1986) [6]. Thus, it implies that leadership is an innate attribute, where leaders themselves must be reflective of their own possessed attributes aside from their potentials, behavior and traits.

[20] Personality traits are useful concepts for explaining why people act fairly consistently from one situation to the next. To lead by example should be an ultimate aim, setting an example through one's own behavior is an important form of influencing others as well (Munro, 2008).

Trait is coupled with behavior, because of the assumptions that the behavior of the leader will greatly influence his or her subordinates. This strongly equates how the behavioral phase of leadership works. A shift from trait to behavioral is a necessity because it summarizes as to what particular type of behavior a leader would take in order for others to follow and be influenced. The behavioral phase surmised that great and effective leaders carry with them a particular and/ or specific behavior that makes them somehow influential to

others. An appropriate behavioral style that is said to be innate to a particular leader (Bedeian, 1986).

In similar vein, Northouse (2017), gave a remarkable literature about trait and leadership. According to Northouse leadership is a trait, and as a trait it entails the special gifts a leader possesses. The existence of new behavioral schools of psychology paved the way for the re-evaluation. The two principal reasons are: First, it was contended that if there were indeed "great men", or "natural leaders", it should be possible to investigate the traits that set them apart from the masses and secondly, it was believed that if these unique traits could be identified, other individuals should be able to acquire them through learning and experience. These approaches are said to be far more different from the principle implied by the great man theory. Several studies were conducted to uncover those traits exhibited by a person who holds a higher position in the organization. Avelino and Sanchez (1996) cited significantly a wide array of psychological attributes in which a leader may reflect [2]. Assessment and evaluation by the leader can be possible by considering personal discipline, self-awareness, self-esteem, attitude awareness, creative thinking, innate love for people, and self-confidence as part of the psychological attributes checklist.

In contrast, Bedeian (1986) cited one example of readily evident trait like height. It shows that leaders tend to be taller and smarter than their subordinates. Nonetheless, other results and studies only showed disappointing and contradicting points [6]. There are also limited findings that revealed that leaders excel followers in intelligence, scholarship, dependability, activity and social participation and socioeconomic status.

Given all the important factors that can contribute to effective leadership, any organization can definitely achieve high performance. Any company, organization, or educational institution would require a supervisor, a manager and a leader that can supervise the entire institution toward the attainment of organizational goals and objectives.[1] Competitive leaders need not only good credentials but also the potential to become great and effective leaders who are adaptive and dynamic in order to cope with the demands of the workplace (Araoz, 2014).

With the rise of the different leadership theories, several standardized instruments came about to measure certain attributes of a leader or an individual. Examples are the personality and behavior instruments like Basic Personality Inventory (BPI), Nonverbal Personality Questionnaire (NPQ) that are used to measure 16 different personality traits highlighted by Murray (1938) in his system of needs. Leadership Potential Indicator (LPI) is another example that is found appropriate in assessing an individual's leadership level, skills and styles [21]. [22] It is designed to cover competencies for work and other work-related applications such as recruitment, training, team building, coaching and counseling (My Skills Profile, 2015).

Related to the aforementioned is the High Potential Trait Indicator (HPTI), an instrument that assists in the identification of leadership potential. It helps in identifying the leadership potential through the use of personality traits

(Thomas International, 2015) [36]. Added to the list is the Leadership Potential Assessments by Saratoga. The assessment process has been drawn on “people analytic principles”. [28] The indicators in the assessment process are varied; the items covered are level of seniority, traits, academic credentials, career progression, bonus percentages, and engagement level (PwC, 2014).

The Research Guide and Technical Manual developed by Ferry (2015) provides a comprehensive data in the assessment of leadership potential. It is intended to measure an “individual’s drivers, experience, awareness, learning agility, leadership traits, capacity, and derailment risks” [14]. In Wong (2015), it is advocated that identifying leadership potential must be the “top priority” of every organization and all other institutions. Wong added that leadership potential is a multifaceted factor and thus assessment of which must be likewise multidimensional [41].

Similarly, Premuzic (2016) identified four generally used indicators to measure leadership potential— educational achievement, emotional intelligence, ambition, and IQ [27]. Trivett (2015) presented in his study that is titled “21 Tough Interview Questions that Reveal True Leadership Potential” significant items which highlighted passion, conflict resolution, adaptability, creativity, negotiation, decision making and people management. Nordin (2013) used an instrument called the multifactor leadership style questionnaire (MLQ-5x form) developed from Bass and Avolio (1995) [25]. It is made up of 45 items which measured the full-range of leadership style and behaviors, leaders’ behavior depicted in each item were measured using a 5-point scale [3].

The Development Dimensions International, Inc. (2011) identified ten high potential factors that give an instinctive meaning to leadership potential namely propensity to lead, bringing out the best in others, authenticity, receptivity to feedback, learning agility, culture fit, passions for results, adaptability, conceptual thinking and navigates ambiguity. The DDI’s Global Leadership Forecast (2011) emphasized that in order for an organization to become successful, it needs to be discrete in the identification process of who amongst the members have the top qualities or the so called “hard-to-acquire skills, traits and abilities” who can be develop into a leader capable of driving people to work to their fullest potentials. The Development Dimensions International, DDI’s Identifying Leadership Potential process (or DDI’s Sales Leadership Potential process for sales leadership roles) is a tool that can help or assist people in the organization in assessing the standard measure in choosing or identifying leaders who can be tapped and are capable of leading the diverse world of work. The DDI’s Identifying Potential Factors were proven effective since chosen variables were found to be grounded on research and most are research-based in nature. Variables were operational and applicable and were able to forecast the ability of the leader to grow and develop. The process itself can be used in any organization or industry where there is a need for the identification of the hidden assets and talents of aspiring leaders.

The instrument on “Self-Assessment on Leadership Practice” developed by the Council of Chief State School Officers

(2013) presented a comprehensive self-inventory assessment tool. It is designed to assist education leaders to become more reflective on their current professional undertakings. This can help practicing professional educational leaders have an overview both on their positive attributes, and negative characteristics that need improvement. Likewise self- assessment or self- reflection instruments can be used as a support for enhancement on the weaknesses of a leader. Self-assessment tools can give accurate details on the current practices and could be possible of sources of inputs and help in the improvement of the different practices in leadership. An honest self-evaluation is important because this will allow an individual leader to have a picture of the real problems (yuki, 2018) [44].

Trait as a factor toward effective leadership did not earn so much support in the past 1890’s until such time that it was revisited and re-evaluated. It was strongly identified that it should be coupled with other significant elements to achieve effective leadership. Trait versus the UHM Personality Types instrument is one good example of an instrument in leadership. Somehow, typological instruments tend to be more extensive in the areas of personality they cover, providing insights into deep personality factors and ways to leverage off the person’s strengths and minimize their weaknesses (Mark Two Consulting, 2015) [18].

Bedeian (1986) gave a clear example of a standardized instrument that is used to measure leadership potential. Said instrument gauges the leadership potential of a leader by indicating agreement or disagreement of each item. Leadership potential is gauged based on the following items or indicators: (1) Good leaders are born not made; (2) I tend to treat my subordinates well so long as they do what I say; (3) Good leaders depend on their followers as much as they depend on themselves; (4) As a leader I would always include the reason why when asking a subordinate to perform a task; (5) A good leader will always achieve his or her objectives at any cost; (6) As a group manager, I would never entrust a vital project to anyone but myself, even if that meant working overtime; (7) A key to good leadership is being consistent in how one leads; (8) If justified, I would recommend a subordinate for a promotion to a position equal to or even higher than my position; (9) Some subordinates can participate in the decision-making process without threatening a leader’s position; (10) If my group failed to achieve an objective because of a group member’s failure I would explain it as such to my superiors; and (11) I consider myself indispensable in my , present position. The quoted indicators were taken from an article authored by Oliver L. Niehouse, Supervisory Management 28 (January, 1983) entitled “How to Measure Your Leadership Potential”, AMACOM Periodicals Division of American Management Association ( Bedeian, 1986) [6].

Meanwhile, according to Bieger and Gerlach (1996), the result of a study becomes useful only when it can be accurately and confidently interpreted. It is just the same way, when it comes to instrument development or development of measurement tools where the very heart or center of it dwells on validity [5]. As the present study is concerned about developing an instrument, literature on validity, reliability and factor analysis hereby follows.

Validity and reliability are two of the most important qualifications of research instruments. There are however different types of validity. Each type renders its own purpose into which it is intended to be used in an appropriate manner (Polit & Beck, 2006).

Collective terms such as accuracy of instruments, correctness of inferences and trustworthiness of the instruments were elaborated by Bernard (2013) and Polit and Beck (2006)[26] [4]. Accordingly, data and findings from the instruments should conform with the standards on validity.

Salkind (2012) enumerated the different kinds of validity that will help assess instruments and quantify given measures. In no particular order, these are the face validity, content validity, construct validity, criterion validity, concurrent and predictive validity. Face validity describes the degree to which an assessment measures what it appears to measure. Concurrent validity measures how well the results of one assessment correlates with other assessments designed to measure the same thing. Construct validity pertains to the close fitness between the construct to be measured and the actual observations to be made, thus it is supported by predictions and theories. Predictive validity measures how well the assessment results can predict a relationship between the construct being measured and future behavior [31].

[4] Content validity refers to how accurately an assessment or measurement tool taps into the various aspects of the specific construct in question. Content validity is achieved when an instrument has appropriate content for measuring a complex concept, or construct (Bernard, 2013). Content validity index as a result reflects the degree to which an instrument has an appropriate sample of items intended for the construct being measured (Shi, Mo & Sun, 2012). As a popular measure, content validity is widely used in quantitative evaluation.

With respect to factor analysis, historical origin of factor analysis rooted in the early 1900's with Charles Spearman's conceptualization (Harman, as cited in Yong & Pearce, 2013) [43]. Since then it has been used and became popular with all its application in different fields such as medicine, social sciences, geography, economics, and most especially the behavioral aspects.

Factor analysis is a part of the so called General Linear Model or GLM which is a group of sophisticated procedures used in the consolidation of valid data and for data reduction. The main objective of factor analysis is to vividly quantify the relationship of measured variables and determine patterns that exist (Yong & Pearce, 2013) [43].

Being a part of the GLM, factor analysis indicated several assumptions: (1) there is linear relationship, (2) there is no relationship, (3) it includes relevant variables into analysis and (4) there is true correlation between variables and factors (Yong & Pearce, 2013) [43]. These assumptions are the main reasons why factor analysis is used widely across all disciplines. The social sciences to be specific is constantly utilizing the application of it especially in establishing and measuring intact scales for quantifying social and psychological variables (Bernard, 2013) [4].

Factor analysis is a method that is used to reduce large number of variables into fewer number of factors. It is a technique that extracts maximum common variance from all variables and puts them into a common score. The view about variance is very significant because factors accounts for pieces of variance. Variance pertains to dispersion or correlation. Once factors are extracted from a correlation matrix, some of the essential factors may help explain a lot of variance while the non-essentials maybe weak and be removed by the researcher (Bernard, 2013) [4].

Since factor analysis is greatly based on correlation between and within, so therefore they are assumed to have some similar underlying variable in common, and for that matter factor analysis is seen as a technique for identifying and at the same time interpreting those underlying variables or factors. However, the most common statistical solution for identifying underlying variables or factors is the orthogonal factor analyses. There are some other alternative ways or other different solutions which are options that can be chosen in some major statistical packages other than orthogonal solutions.[4] These are the statistical packages like Statistical Analysis System (SAS), Systat Software, and Statistical Package for the Social Sciences (SPSS) (Bernard, 2013).

Discovery and simplification of the gathered data are the main intent of factor analysis. Interrelatedness of patterns created are supported by standard measures (Harman and Child as cited in Yong & Pearce, 2013). Two main factor analysis techniques are classified in which each has salient features. These are the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The given techniques encompass two significant functions: Exploratory Factor Analysis (EFA) which uncovers and explores dataset and tests predictions while Confirmatory Factor Analysis (CFA) uses Path Analysis to confirm hypothesis (Child, as cited in Yong & Pearce, 2013) [43].

Alternative ways of quantifying underlying variables are the Principal Component Analysis, Unweighted Least Squares, Generalized Unweighted Least Squares, Maximum Likelihood, Principal Axis Factoring, Alpha Factoring and Image Factoring (Costello & Osborn, 2005) [9]. Among the given types enumerated, some authors suggested the Maximum Likelihood Method as one that is widely used. It quantifies data that are normally distributed. The other one is the Principal Axis Factoring which is used if multivariate normality is severely violated.

The present study banks on the aforementioned literature on the importance of valid tools or instruments in measuring attributes especially if the measured attributes critically influence the future of the organization. One critical decision that institutions face is choosing the leader with the best potential to ensure organizational success and sustainability. Studies show that both in choosing experienced leaders to succeed old batch and to assign a batch of novice leaders indicate that at their first 1.5 years in the position, about 30 to 70% of them fail to deliver target results, and such failures (along with the eventual turnovers and the possible increase in employees' stress and decrease in their engagement due to maladjustment) cost a lot for the institutions (Scott, Church & McLellan, 2017). Scott and colleagues added that the

scenarios of failures and turnovers may be mitigated or avoided by adopting effective measures in selecting the strongest candidates for the position. One measure could be the use of an appropriate instrument for assessing prospects where assessment results could identify the most fitting person in the position and could project how successful the candidates would be in performing in a diverse, complex and dynamic workplace [32].

The majority of the traditional and existing instruments may have been tested and guaranteed, however, many of them are found to be culture-based or culture-bound and are mostly generic in terms of use-perhaps to cater to a greater range of disciplines on leadership. Hence, a need to develop one that is focused on school leadership is spotted. This is where the present study aims to contribute: to propose a potent tool that specializes on determining the leadership attributes of school heads by adopting the five leadership meta-competencies on Leadership Potential Indicators, the initiating and consideration structure by Stogdill (cited in Bedeian, 1986) and traits or attributes [6].

In particular, this study envisions to develop and validate a proposed instrument which have been substantially constructed based on the consolidated literature on theories and concepts on leadership to eventually formulate constructs, themes, categories and prepositions. Factor analysis, and exploratory factor analysis are supplemental to the study at hand. The chosen research designs attempt to uncover the missing link which have been scrutinized from the previous literatures undertakings. Findings in this study will attest to the popularity and applicability of the second generation statistical designs. Though limited in the chosen variables on leadership attributes, an emergent theory or model is highly envisioned.

Indeed, a review on the conceptual language of educational leadership is imperative. A substantial review on the major epochs of foundational writings together with informational leadership studies laid the founding principles of the present study Theories, concepts, and principles were revisited along with the gathered existing standardized instruments.

Prelude to the conceptualization of the study was the initial evaluation of the past forms of educational leadership attributes standardized instruments. A modified model was conceptualized which is grounded on the traditional models on leadership attributes blended with the new and existing ones.

Likewise, the present study intends to validate the instrument it is proposing to be named "Educational Leadership Attributes Scale (ELAS)" with the hope in mind that cross-cultural biases will not be an impediment in the realization of the said aims. The instrument being proposed, that is, the ELAS, is also anchored on the concept that it is necessary for an educational institution to deal not only with the structural components of the institution but more importantly with the attributes of its leaders as they lead the institution's stakeholders in realizing the vision-mission, goals and objectives

Schools can be comparable to any organization or any other industry that is supervised by a leader. In relation to school

leadership, educational /school managers need to be constantly reminded of their professional duties as practicing educational leaders (Young, 2018) [44]. The proposed instrument can be used as a tool or guide by educational leaders/managers for self-assessment and self-reflection in relation to their performance as leaders.

Exploratory Factor Analysis (EFA) is utilized in the study to determine the number of factors that manipulate the variables. Its construct validity was also established after the underlying psychological constructs became evident (Salkind, 2012).[4] For an instrument to gain high construct validity, there should be a high degree of fitness between construct and actual observation (Bernard, 2013).

Results of the study is hoped to benefit fellow researchers in the field of leadership, application of the result may give future researcher an insights on the goodness of the statistical designs used in the study for the further enhancement on the knowledge- bound aspect. Future researchers may try to revisit and re-evaluate existing theories and consider the result of this study as a springboard in the realization of a more advanced forms of output.

Meanwhile, the following terms are used in this study based on their given conceptual definition:

Content validity index. This refers to the degree or accuracy of a measurement tool that hits into the several features of the explicit construct, it also known as content related validity, intrinsic validity, relevance validity, representative validity and logical or sampling validity (Yaghmaie, 2003).

Exploratory factor analysis. This is defined as the logical reduction of data into a set of summary variables and used to uncover underlining structure of a phenomena.

Factor analysis [4]. This is a data reduction technique that assumes an underlying association among given construct (Bernard, 2013).

## 2. Method

This study is aimed at developing and validating a proposed instrument on leadership attributes for school leaders and utilized the descriptive quantitative research design. Descriptive quantitative research is an approach in research where a variable is described through the use of numerical data (Bieger & Gerlach, 1996). Likewise, specific research designs were utilized in the study: Content Validity Index (CVI's) for the item/indicator generation and Exploratory Factor Analysis (EFA) for the validation of the proposed instrument [5].

The respondents of the study consisted of 301 school heads: two from state university, four from a private institution and 295 from a public primary and secondary schools. Respondents were purposively selected as school heads and leaders with an adequate experience of about nine to nineteen years and having an educational attainment of post graduate education.

The said instrument was developed using a Likert scale which results in a 5-to 7-point scale (Salkind, 2012).

With regard to the use of factor analysis, Yong and Pearce (2013) [43] cited that in doing factor analysis, the sample size should be at least 300. Due to the complexity of leadership attributes, only three were chosen critically, namely leadership potential, behavior, and trait.

Two stages are involved in the development of the proposed researcher-made instrument, namely the Initial Stage and the Final Stage. The Initial Stage which is the instrument development is made up of three sub-stages: (1) Dimension Identification; (2) Matrix Formulation; and, (3) Item/Indicator Generation. The final stage which is instrument validation is further subdivided into two sub-stages namely (1) Content Validity Index (I-CVI's) and (2) Exploratory Factor Analysis (EFA).

### Initial stage - Instrument development

#### A. Dimension identification

The proposed instrument was initially started by adopting the five leadership meta-competencies of Leadership Potential Indicator (LPI) with five dimensions namely: managing change, planning and organizing, interpersonal skills, results orientation and leadership.

For the leadership behavior aspect, the two dimensions of leader behavior were adopted for the conceptualization of the behavioral phase, namely consideration and initiating-structure. According to Stogdill as cited in Bedeian (1986) [6], the consideration aspect of leader behavior encompasses mutual trust, two-way communication, respect for subordinates' ideas, and concern for subordinates' feelings. The aforementioned samples of leader behavior depict the attachment of a leader and the follower that is known as psychological closeness. Initiating- structure, on the other hand, pertains to a leader behavior geared toward directing subordinates on the attainment of their goals and objectives. Benchmark statements were constructed based on leadership potential, behavior and trait research materials.

#### B. Matrix Formulation/ Construction

The matrix consisted of five columns: the objectives of the study, cited literatures, source or references, item/indicator and the remarks. There are two sets or separate rating scale for the experts and for the respondents. For the experts, the rating scale composed of: 4= highly relevant/ proficient, 3= moderately relevant/proficient, 2= slightly relevant/proficient and 1= not relevant/proficient. For the respondents, the ratings are: 4= highly true of me, 3= moderately true of me, 2= slightly true of me, and 1= not at all true of me.

(See Appendix D for the Matrix for the Development and Validation of the Proposed Instrument on Leadership Potential, Behavior and Traits)

#### C. Item/Indicator generation

The initial draft of the proposed instrument is made up of a sixty items/indicators that are gauging three dimensions namely: leadership potential, leadership behavior and leadership trait. Leadership Potential is subdivided into five

sub-dimensions: managing change with items 1-6, planning and organizing with items 7-18, interpersonal skills with items 19-24, result-oriented with items 25-30 and leadership with items 31-37. Leadership Behavior, on the other hand, has two subdivisions: consideration with items 38-41 and initiating structure with items 42-45. Lastly, Leadership Trait has items 46- 60, however it has no sub-dimension.

### Final Stage- Instrument Validation

#### A. Content Validity Index (CVI)

Researchers may use two types of CVI: the content validity for individual items and content validity of the overall scale (Lynn, 1986) [17]. Accordingly, there is a considerable agreement on how to compute for these two types. For the item- level content validity index or I-CVI, a panel of content experts in educational management was chosen and about four experts were able to give their own evaluation of the item/indicator that were enumerated. Each of the experts was asked to rate each scale item in terms of its relevance to the underlying dimensions and or construct. Lynn (1986) recommended a minimum of three experts. Waltz and Bausell (1983) [39] suggest that the item ratings are typically on a four point ordinal scale. A three to five point rating scale might be acknowledged but a 4-point scale is said to be better directed toward objectivity.

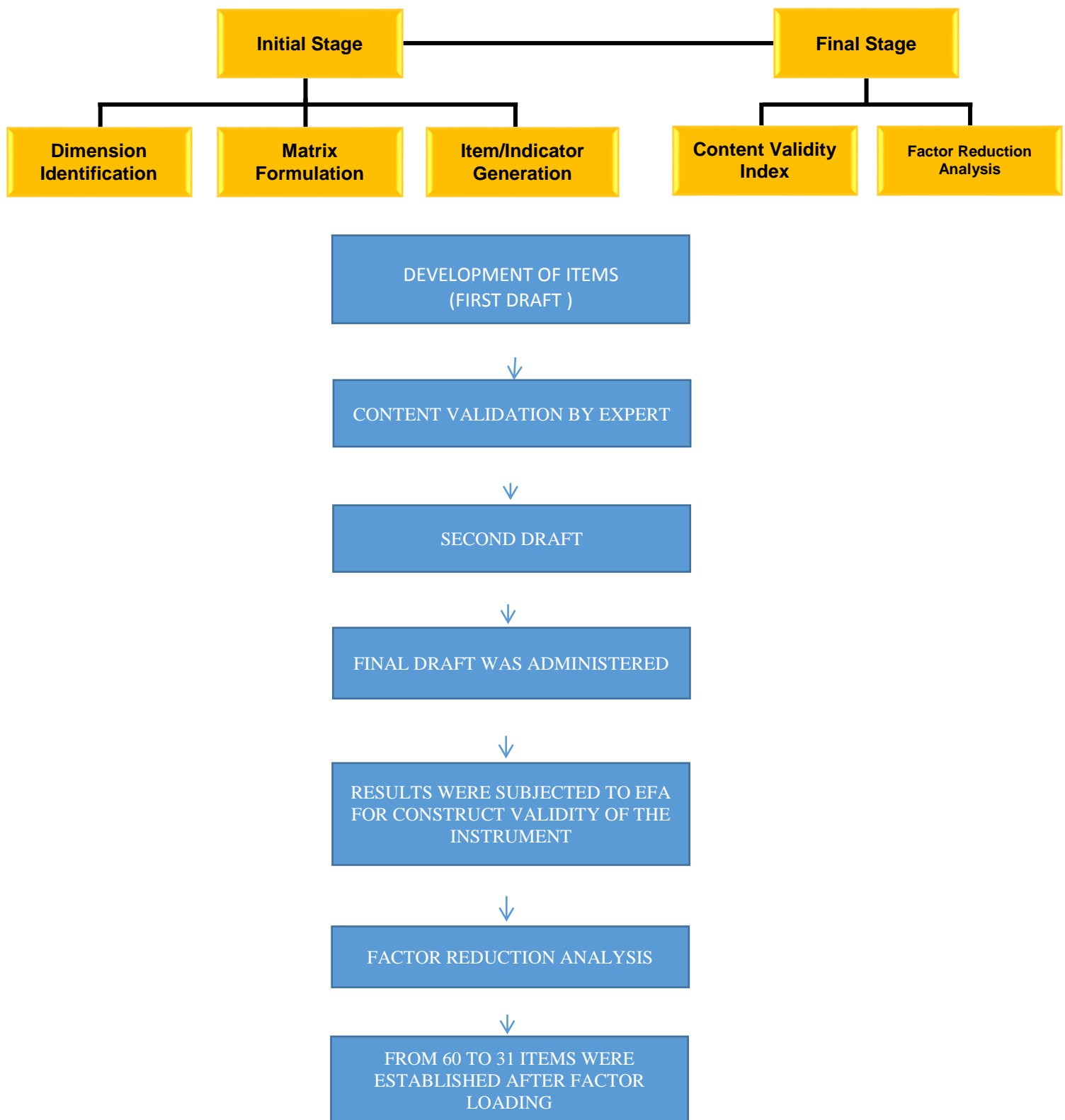
#### B. Factor reduction analysis

After establishing the validity of the item/indicator of the instrument, the proposed instrument was administered to the prospective respondents. Upon retrieval of the distributed instruments, gathered data were encoded via excel documents. Consolidated data were subjected to factor analysis.

Steps in factor analysis were as follows: (1) data collection and preparation of variables to correlate; (2) extraction of factors; (3) choosing number of factors; (4) rotating and interpreting (5) a. deciding if changes need to be made, e.g., drop item/s or include item/s; b. repeating steps 3 and 4 (6) constructing scales and further analysis (Costello, 2005; Fabrigar, Wegener & MacCallum, 1999; Comprey, 1992; BM Corp.,2012) [9] [40].

Factor reduction analysis is a technique that is used to reduce a large number of variables into fewer number of factors. It is therefore a data reduction method. It extracts maximum common variance from all variables and put them into a common score. As an index of all variables, this score can be used for further analysis. It seeks underlying latent variables that are reflected in the observed variables (e.g., items).

One of the prerequisites of factor analysis is to obtain the KMO (Kaiser-Meyer-Olkin) index. This is accomplished by following the given values: greater than 0.9, marvelous, 0.80's, meritorious, .70's, middling; e .60's mediocre. In the .50's, miserable. Below .50, unacceptable. The figure below illustrates the stages involved in the development and validation process.



**Figure 1.** Flowchart of the Stages in the Development and Validation of the Proposed ‘ELAS’ (Educational Leadership Attribute Scale)

Factor analysis is used to look for a simple structure. Simple structure is a pattern of results such that each observed variable (item) load highly into one and only one factor. Below is a given example.



**Table 1**  
Factor Loading on Leadership Traits

		Factor1 Loading	Factor2 Loading
q49	I try my best despite uncertainties.	.317	.660
q50	I can manage to withstand delays and can wait for the proper time.	.130	.717
q51	I can discern on things with full insights.	.263	.670
q52	I give recognition to people for their contributions.	.751	.162
q53	I always take a positive stance.	.620	.342
q54	I serve and work for the people.	.658	.297
q55	I am realistic to determine the art of the possible.	.505	.464
q56	I am strong enough to stand on my own convictions and accept criticism.	.466	.529
q57	I move the group forward by incorporating new strategies.	.484	.517
q58	I see to it that I prepare before executing any activity.	.545	.373
q59	I motivate others to become involved in getting the job done.	.709	.293
q60	I see to it that I express my ideas sincerely and honestly.	.755	.232

### 3. Results and Discussion

#### Development Stage

Based on an extensive review of related literature on educational leadership, the initial draft of the proposed instrument was formed. It was composed of 60 items (see Appendix C for the complete copy of the initial draft) prior to content validation by experts. The 60 original items/indicators are as follows:

**Table 2**

The instrument with 60 original items/indicators

Instruction: Please accomplish the following items, encircle your answer by using the given rating scale.

#### Rating Scale:

4 - Highly True of Me    3 - Moderately True of Me    2 - Slightly True of Me    1 - Not at all True of Me

Indicators	Rating			
1. I usually initiate to contribute whenever there are projects or activities.	4	3	2	1
2. I prefer to think on the positive side of things rather than the negative.	4	3	2	1
3. I am not afraid to try new things.	4	3	2	1
4. I can easily bring out creative ideas.	4	3	2	1
5. I can adapt easily to change.	4	3	2	1
6. I can flexibly respond to people and situations.	4	3	2	1
7. I carefully analyze situations with discernment.	4	3	2	1

8. I can diligently make rational judgments on issues and concerns.	4	3	2	1
9. I can objectively come up with logical decisions on matters at hand.	4	3	2	1
10. I can see myself achieving the realization of my goals and objectives.	4	3	2	1
11. I can accomplish task on my own even when new needs arise.	4	3	2	1
12. I design my own plan of activities.	4	3	2	1
13. I strictly follow the set of priorities given on my plan of activities.	4	3	2	1
14. I make sure that I am productive at all times.	4	3	2	1
15. I encourage others to be willing to work beyond appointed time as necessary.	4	3	2	1
16. I make sure that I am doing the right thing at the right time.	4	3	2	1
17. I demonstrate diligence in the workplace.	4	3	2	1
18. I acknowledge/ recognize successful accomplishment of tasks.	4	3	2	1
19. I extend emotional support to co-workers.	4	3	2	1
20. I clearly inform people of what is expected of them to accomplish.	4	3	2	1
21. I build mutual trust and rapport with co-workers.	4	3	2	1
22. I make necessary adjustment in order to meet the needs of my subordinates.	4	3	2	1
23. I involve people in planning and decision - making.	4	3	2	1
24. I motivate people in achieving their goals in life.	4	3	2	1
25. I am firm in achieving my vision in life.	4	3	2	1

26. I want to achieve my goals the soonest possible time.	4	3	2	1
27. I make people move in the right direction amidst difficulties.	4	3	2	1
28. I inform people about the quality of services that is expected of them in their output/products.	4	3	2	1
29. I challenge my subordinates to aim high towards the achievement of their goals.	4	3	2	1
30. I allocate resources appropriately.	4	3	2	1
31. I delegate appropriate tasks to individuals who I believe can deliver the right amount of services.	4	3	2	1
32. I initially execute things to be done so that others may do the same.	4	3	2	1
33. I delegate the tasks to skilled and talented individuals who are output-oriented.	4	3	2	1
34. I encourage team work and collaborative efforts.	4	3	2	1
35. I always give regular feedback on achieved tasks.	4	3	2	1
36. I can handle pressure and stress without compromising my ideals in life.	4	3	2	1
37. I manage to stay calm and in control amidst adversity.	4	3	2	1
38. I voluntarily take the lead in every endeavor.	4	3	2	1
39. I listen to subordinates.	4	3	2	1
40. I treat subordinates as my equal.	4	3	2	1
41. I give advance notice of changes.	4	3	2	1
42. I look out for subordinates' personal welfare.	4	3	2	1
43. I schedule work to be done.	4	3	2	1
44. I maintain standards of performance.	4	3	2	1
45. I encourage the use of standard procedure.	4	3	2	1
46. I get along well with others.	4	3	2	1
47. I can readily attract the attention of others.	4	3	2	1
48. I can readily express my thoughts in public.	4	3	2	1
49. I try my best despite uncertainties.	4	3	2	1
50. I can manage to withstand delays and can wait for the proper time.	4	3	2	1
51. I can discern on things with full insights.	4	3	2	1
52. I give recognition to people for their contributions.	4	3	2	1
53. I always take a positive stance.	4	3	2	1
54. I serve and work for the people.	4	3	2	1
55. I am realistic to determine the art of the possible.	4	3	2	1
56. I am strong enough to stand on my own convictions and accept criticism.	4	3	2	1
57. I move the group forward by incorporating new strategies.	4	3	2	1
58. I see to it that I prepare before executing any activity.	4	3	2	1
59. I motivate others to become involved in getting the job done.	4	3	2	1
60. I see to it that I express my ideas sincerely and honestly.	4	3	2	1

The initial stage (dimension identification, item/indicator generation, and matrix formulation) resulted in the development of the instrument thus an initial model was formed.

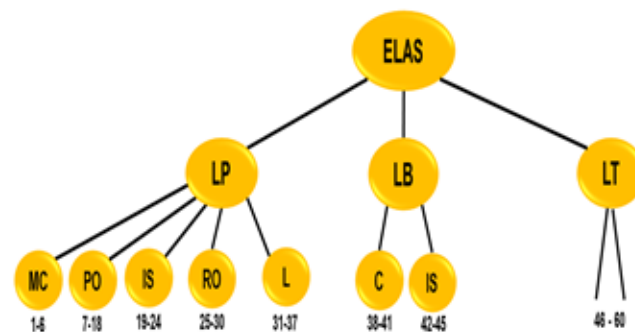


Figure 2. The Proposed Instrument's Initial Model

Figure 2 depicts the ELAS-Educational Leadership Attribute Scale. In order to measure the leadership attributes, the three dimensions were constructed namely LP- Leadership Potential, LB- Leadership Behavior and LT- Leadership Traits. The LP is further broken down into 5 sub-dimensions; MC- Managing Change with 6 items/indicators (1-6), Planning and Organizing with 12 items/indicators (7-18), Interpersonal Skills with 6 items/indicators (19-24), RO- Result Oriented with 6 items/indicators (25-30) and L- Leadership with 7 items/indicators (31-37). The LB is broken down into 2 sub-dimensions; C-Consideration with 4 items/indicators (38-41) and IS- Initiating Structure with 4 items/indicators. Lastly, LT- Leadership Traits with 15 items/indicators but has no sub-dimensions.

**Conduct of the Exploratory Factor Analysis (EFA)**

The Figure 3 illustrates the process involved and the progress attained while the three dimensions were subjected, run and being re-run using the statistical tools-FA/EFA. LP- Leadership Potential Dimension: from the original 5 sub-dimensions namely MC- Managing Change (1-6), PO- Planning and Organizing (7-18), IS- Interpersonal Skills (19-24), RO- Result-Oriented (25-30), and L- Leadership (31-37). The five dimensions were regrouped into two Factors: Factor 1 and Factor 2; Factor 1 has three sub-dimensions namely IS- Interpersonal Skills with two items/indicators left (23 & 24), RO- Result-Oriented with three items/indicators left (27, 28 & 29). And L-Leadership having five items/indicators left (31, 32, 33, 34, & 35). On the other hand Factor 2 has two sub-dimensions: MC- Managing Change (4 & 5) and PO- Planning and Organizing (8 & 9).

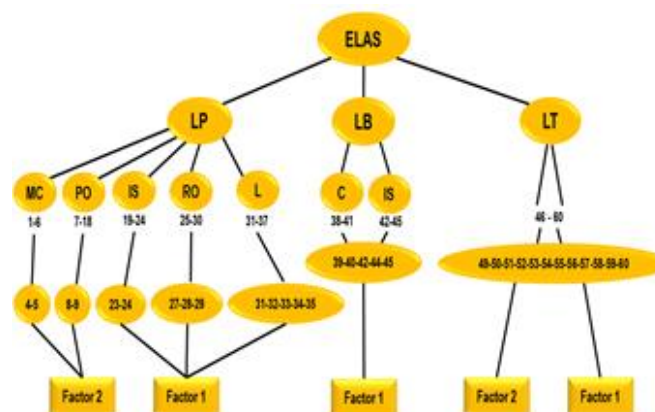


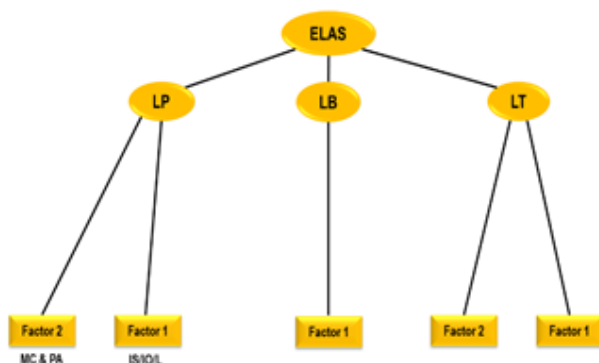
Figure 3. Factor Analysis/ Exploratory Factor Analysis (in process/in progress)

The LB- Leadership Behavior was regrouped from two dimensions into Factor 1 having items (39, 40, 42, 44 & 45). The LT- Leadership Trait originally has no sub-dimensions but it was subgroup into two factors, Factor 1 with items/indicators ( 52, 53, 54, 55, 58, 59 & 60 ) and Factor 2 with items/indicators ( 49, 50, 51, 56 & 57 ).

**Final EFA Results**

Figure 4 illustrates that ELAS- Educational Leadership Attribute Scales has three dimensions; LP- Leadership Potential, LB- Leadership Behavior and LT- Leadership Trait. LP- Leadership Potential eventually came up with two factors; Factor 1 with IS, IO & L as sub-dimensions and Factor 2 with MC and PA as sub-dimensions. LB- Leadership Behavior resulted in one factor only, Factor 1 and finally LT- Leadership Trait resulted into two factors, Factor 1 and Factor 2. The two last figures demonstrate the final stage (content validity index, factor analysis/exploratory factor analysis) which correspond to the validation of the instrument. Validation quantified and established the given constructs, thus a new model transpired.

Along with the figures and models, tables are given to illustrate the quantitative results of the study. Based on the Exploratory Factor Analysis results, the three dimensions led to the creation of five factors: Leadership Potential LP- Factor 1 Leadership Behavior LB- Factor 1 Optimum Leadership OL; Leadership Traits LT- Factor 1 Idealistic leadership; Factor 2- Visionary leadership.



**Figure 4.** Final Result of Factor Analysis/Exploratory Factor Analysis

**Table 3**  
**Leadership Potential**

Kaiser-Meyer-Olkin (KMO), Bartlette’s Test of Sphericity, and Community Statistics: Leadership Potential

		Communities	Item KMO
q4	I can easily bring out creative ideas.	.416	0.868
q5	I can adapt easily to change.	.437	0.876
q8	I can diligently make rational judgments on issues and concerns.	.483	0.886
q9	I can objectively come up with logical decisions on matters at hand.	.512	0.977
q23	I involve people in planning and decision -making.	.481	0.905
q24	I motivate people in achieving their goals in life.	.519	0.927

q27	I make people move in the right direction amidst difficulties.	.399	0.923
q28	I inform people about the quality of services that is expected of them in their output/products.	.530	0.933
q29	I challenge my subordinates to aim high towards the achievement of their goals.	.436	0.943
q31	I delegate appropriate tasks to individuals who I believe can deliver the right amount of services.	.491	0.941
q32	I initially execute things to be done so that others may do the same.	.505	0.948
q33	I delegate the tasks to skilled and talented individuals who are output- oriented.	.522	0.946
q34	I encourage team work and collaborative efforts.	.508	0.949
q35	I always give regular feedback on achieved tasks.	.450	0.937

The table illustrates an Overall KMO measure of sampling adequacy: .923. Value of item-level KMO and multiple-item KMO vary between 0 and 1.0, where values closer to 1.0 the better. This study utilized a KMO criterion of greater than 0.5 (Field, 2000). Bartlett’s Test of Sphericity: Chi-square= 1761.369, df= 91, p= .000. Factor analysis can be conducted subsequently since the Bartlett’s Test of Sphericity is statistically significant (p >.05). Items with communalities of less than .4 were removed and were not included in the subsequent factor analysis.

**Table 4**  
**Leadership Behavior**

Kaiser-Meyer-Olkin (KMO), Bartlette’s Test of Sphericity, and Community Statistics: Leadership Behavior

		Communities	Item KMO
q39	I listen to subordinates.	.481	.781
q40	I treat subordinates as my equal.	.650	.786
q42	I look out for subordinates’ personal welfare.	.406	.901
q44	I maintain standards of performance.	.543	.804
q45	I encourage the use of standard procedure.	.498	.785

Overall KMO measure of sampling adequacy: .806. Values of item-level KMO and multiple-item KMO vary between 0 and 1.0, where values closer to 1.0 the better. This study utilized a KMO criterion of greater than 0.5 (Field, 2000).

Bartlett’s Test of Sphericity: Chisquare= 590.118, df=10, p = .000. Factor analysis can be conducted subsequently since the Bartlett’s Test of Sphericity is statistically significant (p<.05). Items with communalities of less than .4 were

removed and cannot be included in the subsequent factor Analysis.

**Table 5**  
**Leadership Traits**

Kaiser-Meyer-Olkin (KMO), Bartlette's Test of Sphericity, and Communalities Statistics: Leadership Traits

		Communalities	Item KMO
q49	I try my best despite uncertainties.	.537	.912
q50	I can manage to withstand delays and can wait for the proper time.	.532	.894
q51	I can discern on things with full insights.	.518	.927
q52	I give recognition to people for their contributions.	.590	.917
q53	I always take a positive stance.	.502	.920
q54	I serve and work for the people.	.522	.938
q55	I am realistic to determine the art of the possible.	.470	.953
q56	I am strong enough to stand on my own convictions and accept criticism.	.497	.947
q57	I move the group forward by incorporating new strategies.	.501	.916
q58	I see to it that I prepare before executing any activity.	.436	.920
q59	I motivate others to become involved in getting the job done.	.588	.913
q60	I see to it that I express my ideas sincerely and honestly.	.624	.904

Overall KMO measure of sampling adequacy: .922. Values of item-level KMO and multiple-item KMO vary between 0 and 1.0, where values closer to 1.0 the better. This study utilized a KMO criterion of greater than 0.5 (Field, 2000). Bartlett's Test of Sphericity:  $\chi^2 = 1737.55$ ,  $df = 66$ ,  $p = .000$ . Factor analysis can be conducted subsequently since the Bartlett's Test of Sphericity is statistically significant ( $p < .05$ ). Items with communalities of less than .4 cannot be included in the subsequent factor Analysis. Other items with communalities less than .4 such as q46-q48 were excluded in the factor analysis.

Since all of the given variables met the criteria, the next step can now be started and that is the extraction, but first decision was made on which extraction method is to be used. However, information on the relative strengths and weaknesses of extraction methods are scarce. Some authors suggested that the following can be used. Maximum Likelihood Method is used if data are normally distributed. Principal Axis Factoring is used if multivariate normality is severely violated.

**Table 6**  
**Number of Factors for Leadership Potential**  
Eigenvalues and percentage of variance extracted:  
Leadership Potential

Factor	Eigenvalue	% of Variance	Cumulative %
<b>1</b>	<b>6.202</b>	<b>44.301</b>	<b>44.301</b>
<b>2</b>	<b>1.535</b>	<b>10.967</b>	<b>55.268</b>
3	.741	5.290	60.558
4	.710	5.074	65.632
5	.661	4.723	70.355
6	.639	4.568	74.922
7	.574	4.102	79.025
8	.533	3.806	82.831
9	.480	3.428	86.258
10	.428	3.060	89.318
11	.409	2.918	92.236
12	.397	2.839	95.075
13	.390	2.787	97.862
14	.299	2.138	100.000

Table shows the Two Eigenvalues that are greater than 1.0, indicating that there are two factor solutions for the 14 items. The proportion of variance accounted for Factor1 is 44.301% while for Factor 2 is 10.967%., thus, the proportion of variance accounted for the two factors is 55.268%. Principal axis factoring method using the varimax rotation was utilized.

**Table 7**  
**Number of Factors for Leadership Behavior**  
Eigenvalues and percentage of variance extracted:  
Leadership Behavior

Factor	Eigenvalue	% of Variance	Cumulative %
<b>1</b>	<b>3.052</b>	<b>61.034</b>	<b>61.034</b>
2	.710	14.191	75.226
3	.565	11.309	86.535
4	.368	7.352	93.887
5	.306	6.113	100.000

Only one Eigenvalue that is greater than 1.0, indicating that only one factor solution for the 5 items. The proportion of variance accounted for the factor is 61.304%. Principal axis factoring method using the varimax rotation was utilized.

**Table 8**  
**Number of Factors for Leadership Traits**  
Eigenvalues and percentage of variance extracted:  
Leadership Traits

Factor	Eigenvalue	% of Variance	Cumulative %
<b>1</b>	<b>6.004</b>	<b>50.035</b>	<b>50.035</b>
<b>2</b>	<b>1.234</b>	<b>10.286</b>	<b>60.321</b>
3	.822	6.852	67.173
4	.590	4.920	72.093
5	.544	4.537	76.630
6	.520	4.332	80.961

7	.487	4.057	85.018
8	.449	3.739	88.757
9	.399	3.323	92.080
10	.342	2.853	94.933
11	.335	2.795	97.728
12	.273	2.272	100.000

Two Eigenvalues that are greater than 1.0, indicating that there are two factor solutions for the 12 items. The proportion of variance accounted for Factor1 is 50.035% while for Factor 2 is 10.286%, thus, the total proportion of variance accounted for the two factors is 60.321%. Principal axis factoring method using the varimax rotation was utilized.

Factor loadings are generated. Factor Loadings (vary from -1.00 to +1.00) represent the degree to which each of the variables correlates with each of the factors.

Factor loadings and reliability of the Leadership Potential Factors

**Table 9**  
**Factor Loading of the Leadership Potential Indicators**

		Factor1	Factor2
q4	I can easily bring out creative ideas.	.151	.627
q5	I can adapt easily to change.	.175	.637
q8	I can diligently make rational judgments on issues and concerns.	.276	.638
q9	I can objectively come up with logical decisions on matters at hand.	.269	.663
q23	I involve people in planning and decision -making.	.670	.180
q24	I motivate people in achieving their goals in life.	.692	.198
q27	I make people move in the right direction amidst difficulties.	.549	.313
q28	I inform people about the quality of services that is expected of them in their output/products.	.704	.184
q29	I challenge my subordinates to aim high towards the achievement of their goals.	.622	.222
q31	I delegate appropriate tasks to individuals who I believe can deliver the right amount of services.	.652	.256
q32	I initially execute things to be done so that others may do the same.	.660	.265
q33	I delegate the tasks to skilled and talented individuals who are output- oriented.	.691	.210
q34	I encourage team work and collaborative efforts.	.689	.180
q35	I always give regular feedback on achieved tasks.	.613	.273

**Table 10**  
**Reliability of the resulting Leadership Potential factors**

Factors/ Items		Cronbach's Alpha if item deleted	Overall Cronbach's Alpha
Factor 1:			.900
q23	I involve people in planning and decision -making.	.891	
q24	I motivate people in achieving their goals in life.	.889	
q27	I make people move in the right direction amidst difficulties.	.895	
q28	I inform people about the quality of services that is expected of them in Their output/products	.888	
q29	I challenge my subordinates to aim high towards the achievement of their goals.	.893	
q31	I delegate appropriate tasks to individuals who I believe can deliver the right amount of services.	.890	
q32	I initially execute things to be done so that others may do the same.	.889	
q33	I delegate the tasks to skilled and talented individuals who are output-oriented.	.889	
q34	I encourage team work and collaborative efforts.	.890	
q35	I always give regular feedback on achieved tasks.	.892	
Factor 2:			.770
q4	4. I can easily bring out creative ideas.	.732	
q5	5. I can adapt easily to	.717	

	change.		
q8	8. I can diligently make rational judgments on issues and concerns.	.711	
q9	9. I can objectively come up with logical decisions on matters at hand.	.702	

52. I give recognition to people for their contributions.	
53. I always take a positive stance.	
54. I serve and work for the people.	
55. I am realistic to determine the art of the possible.	
58. I see to it that I prepare before executing any activity.	
59. I motivate others to become involved in getting the job done.	
60. I see to it that I express my ideas sincerely and honestly.	

**Table 12**

Final list of the items/indicators after Factor Reduction Analysis

**Table 11**  
Summary Matrix of Results

Indicators	Factor/s
<b>Leadership Potential -LP2</b>	<b>Factor 2 (F2- RATIONALISTIC LEADERHSIP)</b>
4. I can easily bring out creative ideas.	
5. I can adapt easily to change.	
8. I can diligently make rational judgments on issues and concerns.	
9. I can objectively come up with logical decisions on matters at hand.	<b>Factor 1 (F1-REALISTIC LEADERSHIP)</b>
<b>Leadership Potential - LP 1</b>	
23. I involve people in planning and decision -making.	
24. I motivate people in achieving their goals in life.	
27. I make people move in the right direction amidst difficulties.	
28. I inform people about the quality of services that is expected of them in their output/products.	
29. I challenge my subordinates to aim high towards the achievement of their goals.	
31. I delegate appropriate tasks to individuals who I believe can deliver the right amount of services.	
32. I initially execute things to be done so that others may do the same.	
33. I delegate the tasks to skilled and talented individuals who are output-oriented.	
34. I encourage team work and collaborative efforts.	
35. I always give regular feedback on achieved tasks.	<b>Factor 1 (F1- OPTIMUM LEADERSHIP)</b>
<b>Leadership Behavior - LB 1</b>	
39. I listen to subordinates.	
40. I treat subordinates as my equal.	
42. I look out for subordinates' personal welfare.	
44. I maintain standards of performance.	<b>Factor 2 ( F2- VISIONARY LEADERSHIP)</b>
45. I encourage the use of standard procedure.	
<b>Leadership Trait -LT 2</b>	
49. I try my best despite uncertainties.	
50. I can manage to withstand delays and can wait for the proper time.	
51. I can discern on things with full insights.	<b>Factor 1 (F1- IDEALISTIC LEADERSHIP)</b>
56. I am strong enough to stand on my own convictions and accept criticism.	
57. I move the group forward by incorporating new strategies.	
<b>Leadership Trait - LT 1</b>	

Indicators	Rating			
	4	3	2	1
1. I can easily bring out creative ideas.				
2. I can adapt easily to change.				
3. I can diligently make rational judgments on issues and concerns.				
4. I can objectively come up with logical decisions on matters at hand.				
5. I involve people in planning and decision -making.				
6. I motivate people in achieving their goals in life.				
7. I make people move in the right direction amidst difficulties.				
8. I inform people about the quality of services that is expected of them in their output/products				
9. I challenge my subordinates to aim high towards the achievement of their goals.				
10. I delegate appropriate tasks to individuals who I believe can deliver the right amount of services.				
11. I initially execute things to be done so that others may do the same.				
12. I delegate the tasks to skilled and talented individuals who are output-oriented.				
13. I encourage team work and collaborative efforts.				
14. I always give regular feedback on achieved tasks.				
15. I listen to subordinates.				
16. I treat subordinates as my equal.				
17. I look out for subordinates' personal welfare.				
18. I maintain standards of performance.				
19. I encourage the use of standard procedure.				
20. I try my best despite uncertainties.				
21. I can manage to withstand delays and can wait for the proper time.				
22. I can discern on things with full insights.				
23. I am strong enough to stand on my own convictions and accept				

criticism.				
24. I move the group forward by incorporating new strategies.				
25. I give recognition to people for their contributions.				
26. I always take a positive stance.				
27. I serve and work for the people.				
28. I am realistic to determine the art of the possible.				
29. I see to it that I prepare before executing any activity.				
30. I motivate others to become involved in getting the job done.				
31. I see to it that I express my ideas sincerely and honestly.				

This presents in narrative form the processes undertaken in developing and validating the proposed Educational Leadership Attribute Scale (ELAS) with the insights gained from the present study and reviewed literature. Conclusions and recommendations are also incorporated in the discussion.

The narrative begins with the lessons on the instrument development followed by those in the validation aspect. The proposed instrument aptly named ELAS to mean Educational Leadership Attribute Scale is a product of an extensive review of related literature and statistical validation.

Prior to the development of the items/ indicators, two main stages were considered: the Initial Stage (Instrument Development) and Final Stage (Instrument Validation), which were eventually broken down into sub-stages.

The Initial Stage is made up of three sub-stages namely Dimension Identification, Matrix Formulation and Item/Indicator Generation. The Final Stage is likewise made up of sub-stages: Content Validity Index (I- CVI's) and Exploratory Factor Analysis (EFA).

The instrument utilized the so-called summated ratings or better known as the Likert Scale (Salkind, 2012). The first draft of the instrument was composed of 60 items indicators adapting the five leadership meta-competencies of Leadership Potential Indicator (LPI) with five dimensions namely managing change, planning and organizing, interpersonal skills, results orientation and leadership.

[6] On the other, hand leadership behavior was based on the Behavior Phase by adopting the initiating- structure and consideration dimension of Stogdill (as cited in Bedeian, 1986). According to Stogdill, the consideration dimension encompasses mutual trust, two-way communication, respect for subordinates' ideas, and concern for subordinates' feelings. Similarly, the initiating-structure focused on the giving of directions to subordinates toward the attainment of goals and objectives. Leadership trait was conceptualized using principles and concepts presented in Northouse (2015) coupled with the Leadership Trait Questionnaire (LTQ). The item generation was not an automatic task; consideration on the culture-biased factor was taken into account. Triangulation was applied during the validation of the instrument.

Three perspectives were considered: those of the validators/ experts, respondents and the literature reviewed. Upon evaluation and validation by experts, their suggestions and inputs were integrated.

Similar concepts and / or unrelated items/indicators were eventually identified, thus the initial draft was enhanced. Subsequently, syntax error, grammar and language accuracy were checked and corrected. Enquiry on the clarity and accuracy of the chosen words in the indicators was critically done by experts in the field of educational management.

Positive inputs from their critiquing were incorporated in the developed instrument. Constructive and sound suggestions were considered thus an enhanced output materialized.

Quantitative testing was done using the principle of content validity index of Lynn (1986) coupled with the own personal evaluation from four experts in the field of educational management. Lynn, Waltz and Bausell (1983) highly recommended a 4-point scale to avoid a neutral or midpoint answers [17].

The proposed instrument garnered an excellent content validity with an overall mean of 3.90, descriptive equivalent of highly relevant with CVI of 0.98. An established content validity and obtained KMO (Kaiser-Meyer-Olkin) indices are prelude to factor reduction analysis. The latter is the best technique to be used to reduce large numbers of variables into concise and fewer number of factors.

The final model in the study depicts that items/indicators were reduced from 60 items/indicators to 31 items/indicators [4]. This is an implication that factor analysis reduced the large number of given variables in the study into number of fewer factors (Bernard, 2013). As a technique factor analysis extracted maximum common variance from all variables and puts them into a common score.

Based on a dense correlation matrix, some factors may explain a lot of variance but others which are weak may be discarded. Nonetheless, there are few factors which may be needed to account for a common variance and/ or factors to be included.

The deleted items were identified to be very weak and thus were discarded. Four items/indicators were deleted under the sub-dimension Managing Change (MC) namely items 1, 2, 3, and 6. Ten items/ indicators were deleted from the sub-dimension Planning and Organizing (P/O) namely items 7, 10, 11, 12, 13, 14, 15, 16, 17, and 18. Four items/indicators were deleted under the sub-dimension Interpersonal Skills (IS). Three items were deleted for the sub-dimension Result-Oriented (RO) namely 25, 26, and 30. Two items/indicators were deleted for sub-dimension leadership (L) namely 36 and 37. Under leadership behavior (LB), consideration (C) sub- dimension, two items/indicators were deleted namely, 38 and 41 while one item/indicator was deleted from the initiating structure (IS) sub-dimension. Three items were deleted from the leadership traits (LT) namely items/indicators 46, 47 and 48.

Consequently, the items/indicators retained were regrouped and further categorized into factors. Factor loading

eventually revealed the final framework of the model given on the study. [7] However, in factor analysis (specifically exploratory factor analysis) newly created factors are to be given names and labeled by the researcher (Comprey, 1992; and BM Corp. Released 2012; Costelo, 2005; Fabrigar et al., 1999) [13].

Two items /indicators were retained from the first dimension- leadership potential sub-dimension, managing change (4 - I can easily bring out creative ideas and 5 - I can adapt easily to change). Managing change dimension that includes items/indicators 4 and 5 simply illustrate the link between management and leadership. This simply shows how management skills and leadership skills complement each other. Nonetheless, “management is coping with complexity while leadership is coping with change” (Zarate, 2012) [46].

Bringing out creative ideas and solutions to things at hand is one remarkable trait of good leaders that is known as Openness which means being creative and flexible (Medina, 2011).

In a relative manner, Uriarte (2009), stated that creativity is one significant trait of effective leaders who envision what they want and how to get it at the end.

On the other hand, two were retained from the planning and organizing sub-dimension (8 - I can diligently make rational judgments on issues and concerns and 9 - I can objectively come up with logical decisions on matters at hand). Items 4, 5, 8 and 9 (that include sub-dimensions: managing change and planning and organizing): out of the four given items/indicators, a new factor was created and it was labeled as Factor 2 under Leadership Potential (LP) dimension.

Factor 2 was labeled as Rationalistic Leadership. The name was given as it embodied a leader who is described as creative, adaptive to change and a rational and logical decision-maker (Medina, 2011; Uriarte, 2009).

Consequently, as factor loading went in progress, 10 items/indicators: 23, 24, 27, 28, 29, 31, 32, 33, 34 and 35 were retained. Two items/ indicators loaded under interpersonal skills sub-dimension (23 - I involve people in planning and decision-making and 24- I motivate people in achieving their goals in life). Leaders need to make adjustment on how to deal with subordinates. A participative approach enables a leader get the suggestions of followers before reaching a decision (Day & Sammons, 2016; Reynolds, 2015; Zarate, 2012) [11] [29] [46]. Leaders have to satisfy followers because leaders cannot lead in isolation but have to respond to the needs of their subordinates (Nicholson, 2013) [23]. A leader must exercise a more approachable leadership style where mutual trust, warmth and rapport with subordinates emanate (Zarate,2012) [46].

Relatively, three items/indicators for the result-oriented sub-dimension remained, namely 27, 28, and 29 (27 - I can make people move in the right direction amidst difficulties, 28- I inform people about the quality of services that is expected of them in their output/products and 29- I challenge my subordinates to aim high towards the achievement of their goals).

Leadership is a distinct role with special responsibilities, but the precise nature of these depends upon the context (Nicholson, 2013) [23]. One remarkable trait of leaders is being motivators, inspiring people to move in the right direction despite the major obstacles in the workplace (Zarate,2012) [46].

Covey (1989) offered one guiding principle that helps people achieve their goals and realize their aims in life: it is beginning with the end in mind as one best attribute of a leader.

Directive leaders inform subordinates about expectations of what must be accomplished to get the desired results. On the other hand, achievement-oriented ones seek challenging goals, provide training and set high expectations for followers thus dynamism is achieved in the organization (Reynolds, 2015; Zarate, 2012) [46].

Five items were retained under the leadership sub-dimension (31- I delegate appropriate tasks to individuals who I believe can deliver the right amount of services, 32- I initially execute things to be done so that others may do the same, 33- I delegate the tasks to skilled and talented individuals who are output- oriented, 34- I encourage team work and collaborative efforts and 35- I always give regular feedback on the achieved tasks).

Fiedler’s contingency leadership confirms that performance can only be achieved through a good interaction between leadership style and situational favorableness or compatibility (Nicholson, 2013; Zarate, 2012) [23]. These simply state that a considerable degree of trust and respect is needed between the leader and followers [46].

This will help leaders evaluate the extent of how followers’ tasks are organized and the amount of leaders’ power (Nicholson, 2013; Zarate, 2012) [23]. Thus, from the given leadership potential attributes, Factor 1 was created (Factor 1- Realistic Leadership) [46].

Meanwhile, one factor (Factor 1- Optimum Leadership) was created from the Leadership Behavior (LB) dimension with consideration and initiating-structure as sub-dimensions. Consideration as sub-dimension of leadership behavior had two (39- I listen to subordinates and 40- I treat subordinates as my equal). A supportive leader treats his subordinates equally (Zarate, 2012)[46].

Three (3) items for the initiating-structure sub-dimension of leadership behavior were retained (42- I look out for subordinates’ personal welfare, 44- I maintain standards of performance, and 45- I encourage the use of standard procedure). Consolidation of items 39, 40, 42, 44, and 45 was labelled Factor 1-Optimum Leadership for Leadership Behavior (LB).

Establishing a well- defined patterns of job assignments and channel of communications is necessary for the initiating-structure and consideration dimensions of leadership behavior because leaders’ behaviors are supposed to influence followers.



Leaders' behavior complements desire and passion for the purpose of goal attainment without compromising implementation of rules and standard procedures to be followed (Zarate, 2012) [46].

On leadership traits dimensions, 12 were retained (49- I try my best despite uncertainties, 50- I can manage to withstand delays and can wait for the proper time, 51- I can discern on things with full insights, 56- I am strong enough to stand on my own convictions and accept criticism, 57- I move the group forward by incorporating new strategies). Items 49, 50, 51, 56, and 57 were labelled as components of Factor 2 (Factor 2 - Visionary Leadership) for Leadership Traits (LT). Determination and confidence are strong traits of leaders because confident and determined leaders feel assured and believe that goals can be accomplished.

The same traits could influence followers to do and think the same (Northouse, 2015). Another factor was generated which is Factor 1 (Factor 1 - Idealistic Leadership) for Leadership Traits (LT). It covers items 52, 53, 54, 55, 58, 59, and 60 (52- I give recognition to people for their contributions, 53- I always take a positive stance, 54- I serve and work for the people, 55- I am realistic to determine the art of the possible, 58- I see to it that I prepare before executing any activity, 59- I motivate others to become involved in getting the job done and 60- I see to it that I express my ideas sincerely and honestly).

While it is important for leaders to be authentic and charismatic, it is also essential for them to have integrity in their relationship with others especially with the workforce of the organization (Northouse, 2015).

With the subsequent turn of the process, a total of 31 items/indicators were retained that were observed to have excellent content validity. These composed of items with I-CVIs that meet Lynn's (1986) criteria [17].

Once again, the reliability and validity of the said instrument was evaluated and that the result yielded a strong and positive implication. Items with communalities of less than .4 were removed and were not anymore included in the subsequent factor analysis.

The processes involved which were content validation and factor analysis, specifically exploratory factor analysis, uncovered the underlying relationships between measured variables: leadership potential, leadership behavior and leadership traits. Based on the results, factor analysis led to the reduction of items, to the reclassification of the indicators as well as to the emergence of new factors.

Factor loading indicated the strength and direction of a factor on measured variables. Factor patterns suggested which items loads highly onto specific factors and eventually it helped in determining what is common among those items which have been retained. Overall, five factors were

realized. The resulting factors were enumerated as follows: two factors for Leadership Potential (F1- Realistic Leadership and F2- Rationalistic Leadership), one factor for Leadership Behavior (F1- Optimum Leadership) and two factors for Leadership Traits (F1- Idealistic Leadership and F2- Visionary Leadership).

The items/ indicators retained after the Exploratory Factor Analysis process were respectively designated in every dimension where meanings and implications were derived from, thus forming leadership categories.

Finally, it is concluded that a modification of leadership attributes instrument can be conducted for re-evaluation and confirmation of the given constructs.

Educational Leadership attributes scales are important tools and the present study is one best example or springboard toward the realization of a tailored fit scale that is culture-based.

The findings may help individuals gain a better understanding of leaders' personality traits, behavior and potential. Other than abilities and skills, Zarate (2012) implied that it is vital to know oneself. Since abilities and skill can be inherent and/ or learned, knowing oneself helps individuals become self-reflective [46].

Self-awareness assists people perceive all the factors that may affect their lives and helps them understand the importance of being reflective. Avelino and Sanchez (1996) cited that self-awareness is one best way to realistically know oneself, thus understanding others as well [2]. Educational leaders may do self-assessment and self-evaluation in order to check on their own progress and growth. They may use the proposed validated Educational Leadership Attribute Scale (ELAS).

Leaders who are reflective can easily assess the performance of their subordinates more objectively (Avelino & Sanchez 1996) [2].

It is through understanding the self that each person can learn how to understand others, how to interact with them, and identify areas needing improvement and appropriate action. All the more, the central dogma of the present study seeks to provide a mental compass to help leaders identify appropriate forms of adaptation in leadership.

Significantly, a link between leadership and management styles can be described with the application of the innovated proposed instrument. Though innovation can be very taxing and uncomfortable, rhetorically speaking one's creativity contributes to the creation of new theory and or model. Thus, a new paradigm is contributed to the body of knowledge.

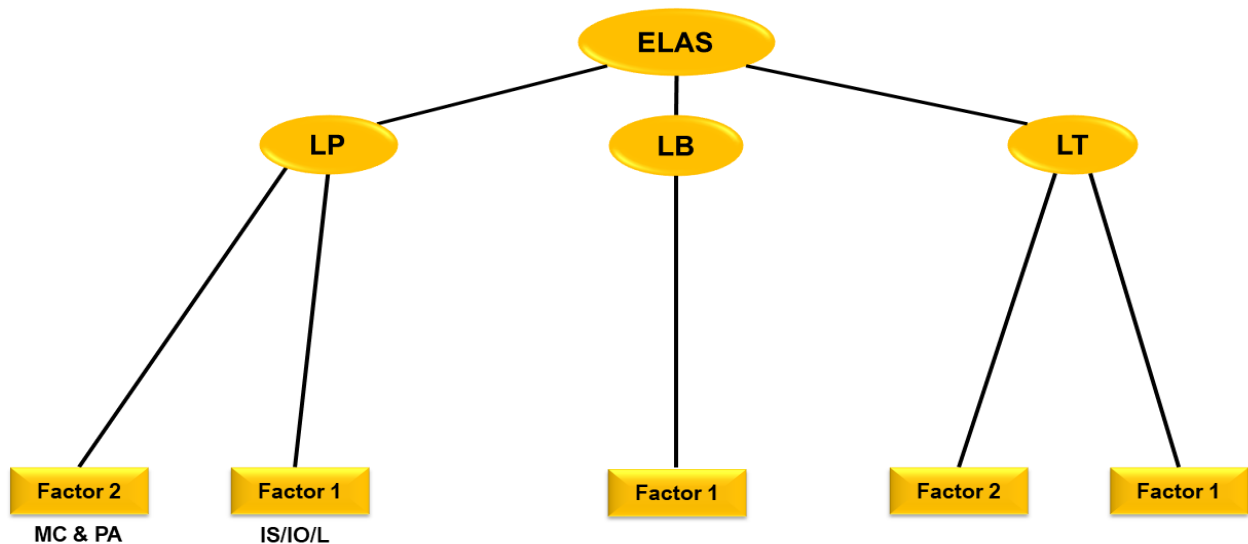


Figure 4. Final Result of Factor Analysis/Exploratory Factor Analysis

However, it is further recommended to proceed to the next level or step of developing a theory. The recently conducted process in the given study is a prelude to Confirmatory factor analysis, continuation of the study can be realized by the said sophisticated method of quantifying data and theory generation. edit

Nonetheless, the current study has described the process of developing a useful instrument to determine the leadership attributes of educational leaders. The study cited important implications. Constant evaluation on the skills, abilities and attributes of leaders is vital to the overall operation of the institution. Self- awareness and self- reflection are driving force towards personal and professional growth (Avelino & Sanchez, 1996). Instrument development and validation maybe crucial, nonetheless the present study has proven the usefulness of the processes involved in quantifying the validity and reliability of the proposed instrument

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