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Research Proposal

**A 3H Perspective on Leadership of Complex International Projects:**

**Tianjin Juilliard School of Music**

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## **Introduction**

The purpose of this study is to explore the holistic 3H framework (Yu 2021) in the context of the project management of a complex international construction project in China. This study initially addresses the relational and morale conditions of a project management team in Tianjin China which had been through two failed leaders prior to the appointment of a third and successful project leader. The study analyzes the impact on team performance of leaders Project Director One and Two (PD1 and PD2, who exhibited the absence of one of the three constructs of the Hand, Head, Heart. Secondly, it describes the conditions which contribute to project complexity. Thirdly the study follows the personal development of the Lead Project Manager, PD3, from a role as a team member to becoming a team leader in the context of considerable complexity. The study addresses the qualities exhibited by PD3 which were different to those of his two predecessors. The 3H frame work provides an holistic model which is very relevant to the needs of the construction industry: H1, technical knowledge of the construction process, H2, planning ability for the organization of workers, materials and scheduling of work tasks, and, the quality most often overlooked in the construction industry of H3, relational interaction, team motivation, empathy, compassion and people orientation.

The study also provides an appended item which is the set-up of research study on authentic leadership questionnaire (ALQ) tools developed by Avolio et al., (2004) which I applied in a triangulated surveying approach from the perspectives of: the line manager, the project lead and from a team member. The micro study used the ALQ questionnaire, translated into Chinese. It also used interviews to gain a detailed understanding of the participants attitudes and experiences. The time available and the small sample group did not reach a stable threshold and consequently I have appended it to the assignment, not included in the body of the work, it forms the basis for future study. The data was input into SPSS but analysis is incomplete.

This study also analyzes how traditional theories of project management are inadequate to manage the multi-faceted levels of complexity typical of international projects. The construction industry is wrought with inherent complexity. The analysis of leader

behaviour, seen through the 3H lens, reveals that traditional theories and practices in project management are flawed and possibly obsolete in dealing with complex international projects. Stakeholder involvement, the pervasive applications of technology, variable technical capabilities between countries, language and cultural differences, geo-political tensions and a global pandemic, create unique levels of complexity which traditional theories are inadequate in describing. This study attempts to make a contribution to a growing body of work which goes beyond the Iron Triangle of time cost and quality, which has dominated project management for over 50 years, and provides an alternative more expansive framework emphasizing the importance of relational interaction and team motivation in successfully delivering complex international projects.

## **Background**

The construction industry is often associated with the undertaking of complex tasks to achieve aesthetically pleasing outcomes. The Sydney Opera House (1973), Taj Mahal (1653), St Basil's Cathedral, Moscow (1561), and the Great Pyramid of Giza (2560 BC) for example, are all structures of great complexity in construction, extending the technical capabilities of the builders to the extremes of the known technology of the time.

What is complexity in construction? (Fazio et al., 1988) describe complexity as being innovative operations which are undertaken without clear specification, in uncertain situations. (Baccarini, 1996) proposes that complexity is composed of 'many, varied interrelated parts.' Baccarini's (1996) model, while superficially simple, requires the user to define the setting; organization, technology, environment, information etc. The division to component parts fails to provide an encompassing model from which to address complex projects. (Baccarini, 1996) focuses on the "two types of project complexity most commonly referred to in project management texts." The organizational, by which he means planning resources, and the technological.

Similarly, (Gidado, 1996) **also** defines complexity as having two attributes: 1. the planning stage involving bringing together diverse elements to create a work-flow, which he calls the management phase, and, 2. The technical/operational aspect which involves technical challenges of individual pieces of work which may be a consequence of the resources or the environment in which the work is undertaken. Both Baccarini's and

Gidado's descriptions align well with Yu's (2021) H2 and H3 components, Head and Hand respectively, of the 3H model. The reduction of management complexity to these two specific attributes, exemplifies Yu's (2022) statement that, "Too often, managers focus on one or two of the H domains, thus they can only partially solve their problems." The omission of the critical third H1 element. This study maintains that the frequently neglected Heart domain, which includes people and value related aspects, ethical standards, motivation and team building, is not only equally important but critical to maximizing the efforts of both teams and individuals within teams.

In the construction industry, where success is dependent upon the ability to manage relationships between teams, failure to establish team unity, a common understanding of goals and a collective purpose is frequently a cause of project failure. Traditional project management theories and practices are primarily focused on the project's activities and tasks, (Koskela and Howell, 2008), the organizational and planning constructs of the industry. Managing time, resources and materials. This assignment focuses on inadequacy of traditional theories in describing the risks and complexity international projects. We identify the relevance of the Yu (2021) 3H holistic model to construction project management. Consistent with the H1 attributes described by Yu (2021) are the relationship and motivational attributes of (Avolio et al., 2004). Authentic Leadership. Authentic Leadership provides an appropriate construct for the analysis H1 characteristics in this case study of leadership of the TianjinJuilliard School of Music project

This is specifically a study of the personal development of a team member, from the role of project manager to authentic project leader of a complex international construction project, The Tianjin Juilliard School. The Juilliard School, New York, has produced some of the world's leading musicians, ballet dancers and actors, it is consistently ranked as the leading institution for the study of the performing arts in the world (QS Top Universities, 2021). The Tianjin Juilliard campus is the first Juilliard campus to be constructed outside of New York.

## 1. What made Tianjin Juilliard a Complex Project?

### **Internal Complexity: Team Management Issues**

Prior to the promotion of the Project Lead the project team underwent two failed leadership rounds which left the team demoralized and unmotivated. Reflecting on the strengths and weaknesses of the first and second leaders provides additional support for Yu's (2022) holistic model. The first appointment was a young and energetic project manager from the US. While strong in some H2, organizational skills, including communication with client and senior management, he lacked the skills to motivate or inspire the team and having overstated his own technical strengths, lacked the experience to engender respect or trust from the team. He frequently criticized the performance of his team members to senior management to compensate for his own shortcomings. Ko et al., (2018) observed that leaders who act with fairness and respect are perceived as practicing reciprocal justice and will be perceived as ethical leaders who act in a manner consistent with their values and beliefs. In the prescriptive language of Yu's (2021), project director (PD)1 demonstrated (H2nH1)-H3. The intentional use of the lowercase h in h3 indicates the partial performance of the technical aspects of the role. The net result was a commitment to performance, some knowledge in the planning requirements but poor capacity to deliver and no ability to bring the team along with him. This is probably best represented by his preference to work from the JLL offices in Tianjin, rather than working with his team from the site office. The weak Hand and lack of Heart strengths and the poor judgement in his treatment of the team made the appointment untenable and left the team in a vulnerable and unmotivated state.

The second appointment was a mature, seasoned construction professional. His age and experience quickly settled the team. He was strong in both Head and Hands components and some elements of Heart, he was a capable and experienced manager who could identify the skills of team members and provide the necessary stabilizing gravity to bring the team together as a unit. It wasn't long, however, before his personal character flaws started to affect his performance on the project and undermine any respect he had developed with the team. Using the prescriptive language of Yu (2021) PD2 started Day One, (H1nH2nH3), a high level of commitment and capability to inspire the team and

communicate with integrity and apparent honesty with staff and client. After 6 months he started to disappear from the site without notice, sometimes for more than a day or two. Complaints from the team mounted and reached a peak when his personal affairs started to become common knowledge to project stakeholders. Discussions on the subject were met with denial and avoidance. His reputation had deteriorated to the point that staff reported being embarrassed to attend meetings with him. He had lost credibility with the team and communication had broken down, (H2nH3)- H1. Ko et al., (2018) noted that when a leader demonstrates a lack of moral engagement, they will not gain the respect as ethical leaders of team members who are highly ethically engaged. The exercise demonstrated how critical moral and ethical behaviour are in establishing trust and respect within a team.

Within this context a senior member of the team was promoted to the role of project lead. He was known and trusted by the team, his values, if not stated, were perceived in his actions, engendering a high degree of trust, Mihelič et al., (2010) describe it as walking the talk, in which internalized values are translated into action which elicits higher degrees of trust and respect from the team.

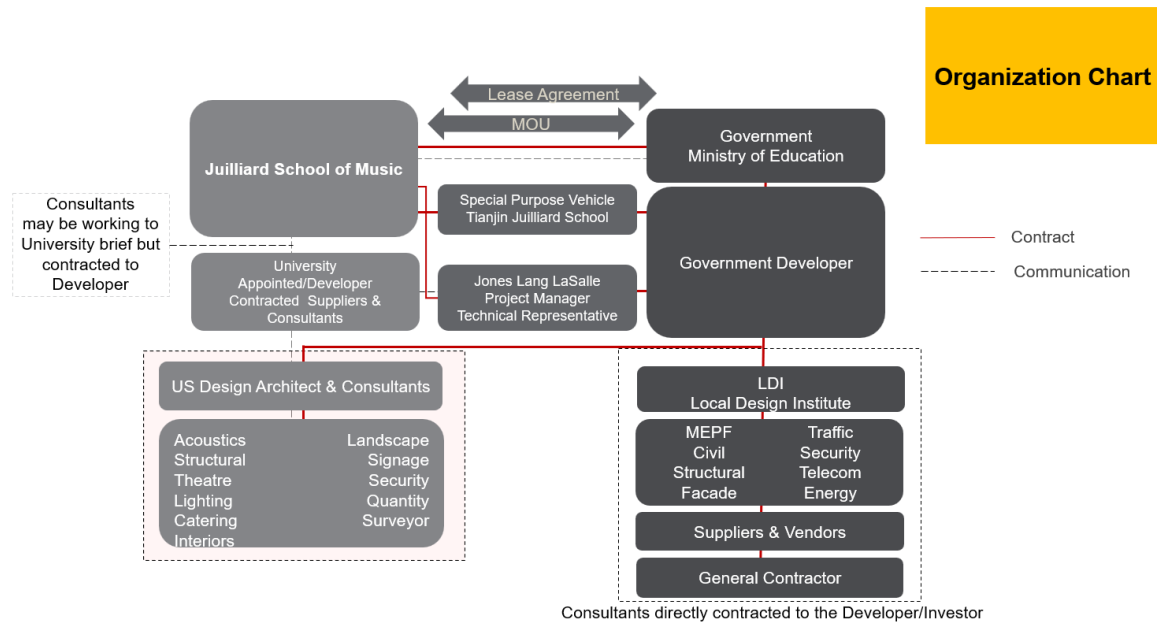
It is apparent, in hindsight, that, what we were observing, the absence of H1 Heart elements: moral and ethical conduct, integrity, authenticity, motivation and team building, in the characters of both PD1 and PD2 was consistent with historical theories of project management. This realization prompted the investigation for Heart component related research. Authentic Leadership provides a useful theoretical basis for the study. Moving from a role as a team member to a team leader is a significant transition. From being a specialist with a specific area of expertise, in this case civil engineering, to leading and motivating a team. Being an existing member of the team did have the added benefit of familiarity and trust already established. The selection of an existing team member increased the sense of unity and collective purpose of the team which we had failed to achieve in the previous two appointments of outsiders. But the new leader PD3 now had a bigger role to play and more complex forces to contend with.

## **External Complexity**

Complex projects in the construction industry are complex not only because of the technical challenges that are faced in turning a sophisticated design and technical specifications into a built form, they are complex also because of the organizational complexity created by the number and status of stakeholders and influencers who are involved at various stages of the project.

**Organizational:** As a foreign higher education institution there is a legal obligation to partner with a local university, in this case the Tianjin Music School, funding is provided by the Chinese Government through local Government to state owned developer. In 2007 the Government committed to the development of an eco-city, Yujiapu, in the Binhai region, south-east of Beijing, intended as part of a de-centralization of the Beijing CBD. The development is designed after New York's Manhattan financial and cultural district. Attracting Juilliard, a symbol of New York cultural life, was an important objective of the Government which involved the First Lady of China, Peng Li Yuen who became the signatory of the agreement between the Juilliard School and the Chinese Government.

As the cultural centre-piece of a new urban development in a foreign country, Juilliard needed to make an architectural statement that would match the prestige of its global reputation. Juilliard had negotiated the right to select their own architect from an invited international competition. JLL managed the competition and evaluation process. The architect would be appointed as the principal consultant overseeing a team of 10 international specialist disciplines including: acoustic design, structural engineering, fire services design, façade design, theatre design, landscaping and more. This required a mirror Local Design Institute (LDI) to be appointed by the China side State Developer in China. Management of communication between these groups fell to JLL.

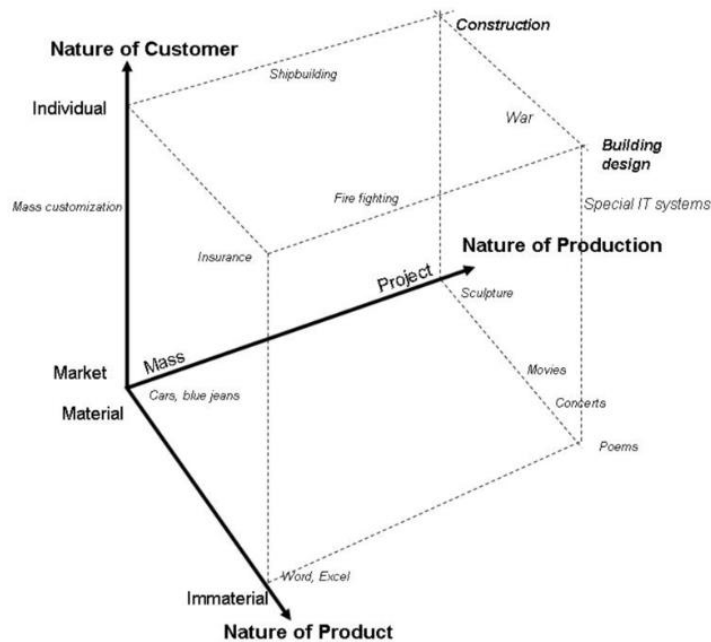


The organizational complexity worked on four levels: a political level, an academic level, a commercial level and a professional consultant level. Each group motivated by different objectives during the period of the project, sometimes complementary, frequently conflicting. The most obvious conflict being the commercial interests of the developer against the building performance interests of the architect and the end user. The developer who was paying for the construction was motivated by the promise of rights to develop residential properties on adjacent sites in the future. His profits were directly linked to how cheaply he could build the school. The School was motivated by the quality of the acoustics and the ability of the school to attract faculty and students.

### Technical Complexity: The Heavy Cost of Unaligned International Systems

The Juilliard School reputation is tied to the quality of its education which requires an exceptional acoustic teaching environment and architectural spaces to enhance the student experience and the quality of the teaching environments for faculty. The specifications of 15NSC which were required for performance halls and the 100 practice rooms are the strictest ever implemented in China. The diagram below by Bertelsen and Koskela, (2005), aptly represents the relative degree of complexity of the design construction industry in relation to other forms of production. Building construction is a

one-off activity in which the production is determined by and frequently in parallel with the design process, offering very little scope for researching of alternative efficiencies, and training of construction teams. The 'project' nature of the industry, furthermore, is focused on the temporary formation of teams of disparate disciplinary specialists, who complete a task and depart the construction, for cost savings it is common to reduce tasks to increasingly small packages and tender each to the lowest bidder, the result is diminishing levels of responsibility and control over the whole product.



The Tianjin Juilliard project highlighted the difference in maturity of the construction industries in China and the USA. The design undertaken in the US by one of the world's leading architects, using 3D modeling software known as Revit or BIM (Building Information Modeling) which is now standard practice in international architectural and engineering projects. The sophistication and eccentricity of many contemporary designs would be unachievable without this type of software and the skills necessary to use it. BIM allows for the coordination of the work of the structural engineers, the architect, the acoustic engineer, the mechanical and plumbing engineers, the electrical engineer and specialist consultants and the interior design team on one set of documentation, as all parties are working on the same digital model. This project required two very large teams, one in the US and a mirror team in China.

In Tianjin Juilliard's case, despite repeated warnings of the risks of not engaging BIM, the Local Design Institute in China took the retrograde step of converting the very complex 3D documentation into 2D. On the construction site, the failure to adequately coordinate the work of the structural engineers and the architect became apparent as clashes between the cladding and the structural members. Aesthetically this was clearly unacceptable, and functionally created a considerable risk of condensation which would have been disastrous for the maintenance of the 100 Steinway pianos housed in the building. Following this extremely expensive and time-consuming error, JLL was elevated to the role of project management to oversee the remainder of the project.

**Local and Geo-political complexity:** Education is an important tool of political interests across the world (Lall and Vickers, 2009). Education is a critical means of preparing a nation for the challenges of the future, addressing current political agenda and expressing the cultural legacy of a nation. International education therefore has the potential of becoming a proxy battle ground between political ideologies. The best example of this is the treatment of Confucius Institutes in recent years in western countries with nationalist leaning administrations which although also using education as an ambassador for culture and language, are not accepting of the supporting political regime underlying the Confucius Institute (Hoare-Vance, 2009). Discussions about developing a Juilliard School in Tianjin were started during the administration of President Barack Obama in the US, and President Hu Jintao in China. The Premier under Hu was Wen Jiabao, a Tianjin native and the driving force behind the Yujiapu Eco City development. Hu Jintao and Wen Jiabao were replaced by Xi Jinping and Li Keqiang in 2013. In the US Barack Obama was replaced by Donald Trump. Both Xi and Trump embarked on nationalist initiatives creating tension between the two nations. [quote ref] Locally, the transition of power in China resulted in a purge of corrupt officials of the previous administration. The arrest in 2018 of the Chairman of the development company, Tianjin Innovative Finance Investment, (TIFI) responsible for Yujiapu Eco City, was an indication of how focused the Beijing administration was on the broader development. It resulted in a major re-

organization of the developer team and finally with a Party Secretary level manager installed on the projects day to day management.

### **Theoretical Context**

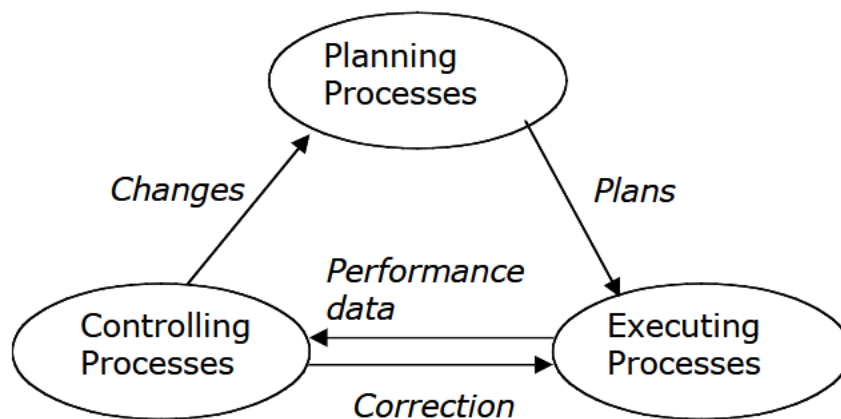
Academic studies of the management of complexity in construction and in general management have increased in recent years with the increased complexity of the construction industry. Krinner et al., (2011) identify three conditions which are contributing to an increasing complexity in construction, 1. the increased number of stakeholders and participants in the process as a result of greater fragmentation, 2. Increasing sophistication of engineering and construction, requiring more specialization and 3. The demand for speed which demands that activities are performed concurrently. The addition of private funding into public projects adds further complexity as identified by (Tepeli et al., 2021). In construction, unlike other forms of production, the process and the product are always unique. Materials, site conditions, weather, design and the capabilities of the construction team contribute to high levels of uncertainty of the outcome (Bertelsen and Koskela, 2005a)

### **Traditional Project Management Theory**

The primary objective of the construction production process is to create value for the client. Value by its nature is a subjective element and open to change during the period of the design and construction, resulting in contract variation orders which add to the budget and possibly the schedule of construction. The Tianjin Juilliard School was built as a build-to-suit contract, in which the developer receives the brief, or in this case the full design, from the end user (Tianjin Juilliard School) and agrees to build to an agreed schedule and standard of work. The developer is the client of the contractor, and the Tianjin Juilliard School will be the long-term tenant of the building. The values of the end user, acoustic quality, iconic design, may not align with the values of the client which are to maximize profit and deliver the project as quickly as possible. Bertelsen and Koskela, (2005) describes the project process as being a collection of sub-projects in continuous turmoil, where changes of objectives may be the rule to the exception and the role of the project manager is to prevent the situation getting out of control. Koskela and

Howell, (2008)in describing the obsolescence of current project management theories, take (Bertelsen and Koskela, 2005b) approach further and apply (Hofstede, 1980) cybernetic management model to describe current practices:

- The standard of performance is agreed
- Performance is measured as an output
- The difference between the standard and the measured output is used to correct the process to achieve the standard.

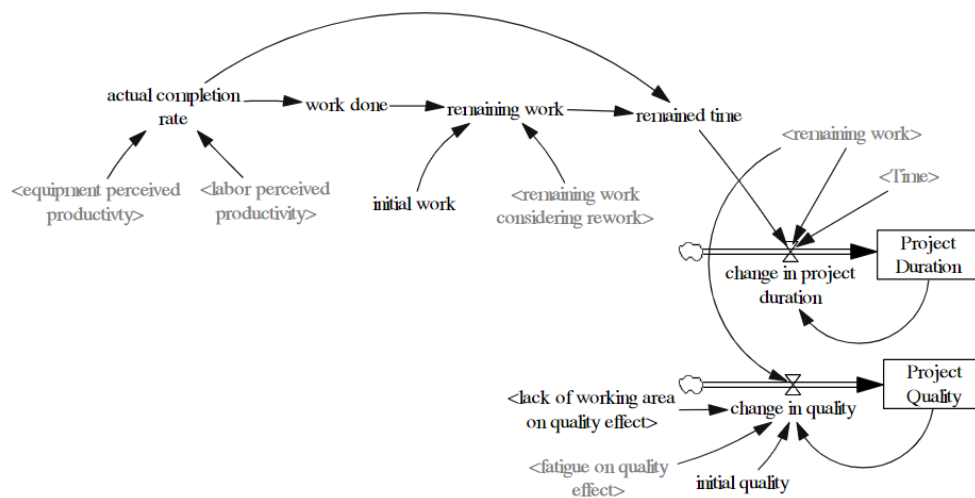


This is very much a planning centred approach to management. It is the H1, Head dominated approach. In conventional post and beam construction, this model was perhaps applicable, however, in the contemporary construction of eccentric forms, complex structural designs, and complex stakeholders, any differences between the standard and the measured output can result in costly and time-consuming repeat work. Contemporary international projects demand an holistic approach to the motivation and coordination of the full stakeholder team. The consequences of a failure to attend to Heart and Hand aspects of 3H comes at a heavy cost in the modern construction industry.

## The Temporal Impact on the Dynamics of Construction

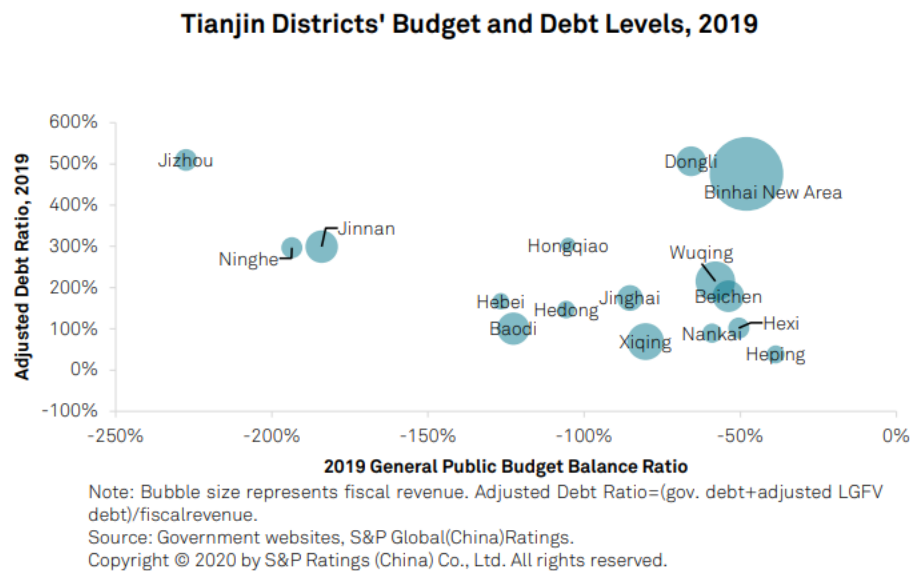
The temporal aspect of construction projects, the overall duration and sequencing, creates a special type of overarching complexity induced by the dynamic nature of construction, (Nasirzadeh et al., 2008). Nasirzadeh et al applied a systems dynamics approach to the analysis of risk in construction. The production of a construction project can extend to several years during which time any of the conditions of complexity, already described can change.

The construction process is subject to continuous feedback cycles which influence decision making, and which change over time to influence the quality of workmanship, the completion date and the final turn out cost of the project. It is a constantly dynamic model.



The impact of time on the outcome of a construction project is of specific relevance to the Tianjin Juilliard project due to the lengthy duration of the project over 6 years and the external geo-political changes which were taking place in on a global level but which had specific relevance to Sino-American relations. During the period of the project the financial condition of the Tianjin region and specifically the Binhai area in which the project was being constructed, deteriorated significantly.

(S&P Global, China, 2020)



## Ethical Leadership

The turmoil that surrounded Tianjin's regional finances throughout the project, and the change in Chinese leadership from Hu Jintou to Xi Jinping, brought a harsh focus on all major capital expenditure projects in the region and on the officials responsible for managing them. During corporate scandals and when government agents' ethics are questioned, the public and judicial authorities are prompted to challenge the moral and ethical standards of those responsible (Mihelič et al., 2010). Ethical behaviour is a core value of leadership (Mihelič et al., 2010) which is disseminated through the teams and determines the climate and culture of an organization. (Bass, 1999) observes that transformational leaders affect the motivation and the moral behaviour of their teams and followers and that teams motivated by transformative leaders will sacrifice self-interest and follow leader inspired values and moral commitments to the group. Authentic

Leadership as advanced by (Luthans et al., 2004) stresses the importance of ethical behaviour and self-awareness and integrity in actions and words which provides a role model for teams. The construction industry in China has long been criticized for corrupt practices, that places considerable stress on project management teams. It is critical that leadership demonstrates ethical behaviour and motivates it with their teams to avoid any perception of impropriety. Much of the study in ethical leadership has been undertaken in western countries. In China ethical leadership is still very much linked to Confucian principles which emphasizes the role of the leader as role model (Resick et al., 2011) . Studies acknowledge that there are both common and divergent aspects of ethical leadership. Altruism, integrity, empowerment and collective motivation appear to be common across cultural studies, whereas support for ethical leadership varied across cultures, as a factor of, amongst other elements, levels of corruption (Resick et al., 2006).

### **A Three Party Contract**

An added complication to an already complex set of circumstances was the transition from a two-party contract between Juilliard and JLL, when we were initially appointed to represent the university, to a three-party contract between JLL, the university and the developer in which the developer pays the JLL fee. Three party contracts are seldom recommended and difficult to implement. There is a potential for side agreements to be formed between two of the parties, harming the third (Hart and Moore, 1988). As the project director is responsible for delivering the work output of the contract, he was burdened by strong criticism from either, and sometimes both, of the other parties, that JLL was favouring the other party.

### **The Authentic Leadership Construct**

It was the core value of moral and ethical behaviour which first drew us to the Authentic Leadership model to explain the transformation of the project lead of the Tianjin Juilliard School project. After the earlier failures in the appointments of two project directors, one for poor moral judgement which put moral conduct in the centre of focus. The Authentic Leadership (AL) model was initially presented by (Luthans et al., 2004). AL is characterized by high levels of ethical and virtuous behavior, transparency, self awareness, resilience and hope (Avolio and Gardner, 2005).

There are four factors to the Authentic Leadership model, the first is self-awareness, an individual's understanding of themselves particular from the perspective of moral emotional and cognitive development (Avolio and Gardner, 2005). The second is relational transparency, the capacity to articulate in an open and transparent manner the values that are held by the leader and can be shared with followers to create an open and trusting environment (Ilies et al., 2005) The third is balanced processing, the ability to analyze critically the situation and objectively consider all available information and opinions before making a considered decision(Walumbwa et al., 2008). And, the fourth is moral fortitude, closely held values which provide the moral compass of a leaders. The earliest use of the Authentic Leadership Questionnaire by Walumbwa et al., (2008)) was conducted using American and Chinese subjects which made this a particularly relevant and useful tool for study.

### **The Dominance of American Leadership Studies**

Of specific relevance to this study is Gardner et al.'s, (2005) study of American and Chinese leaders. In the late twentieth century, studies of leadership were predominantly studies of American samples, over 95% according to (House et al, 1997). From which Bass, (1999) had concluded that concepts of leadership were universal. (Walumbwa et al., 2008) wished to develop the generalizability of the concept to multiple cultures and nationalities and developed the ALQ from that motivation (Walumbwa et al., 2008)

### **Practical Applications of the Holistic 3H Model and Reflections on the Project**

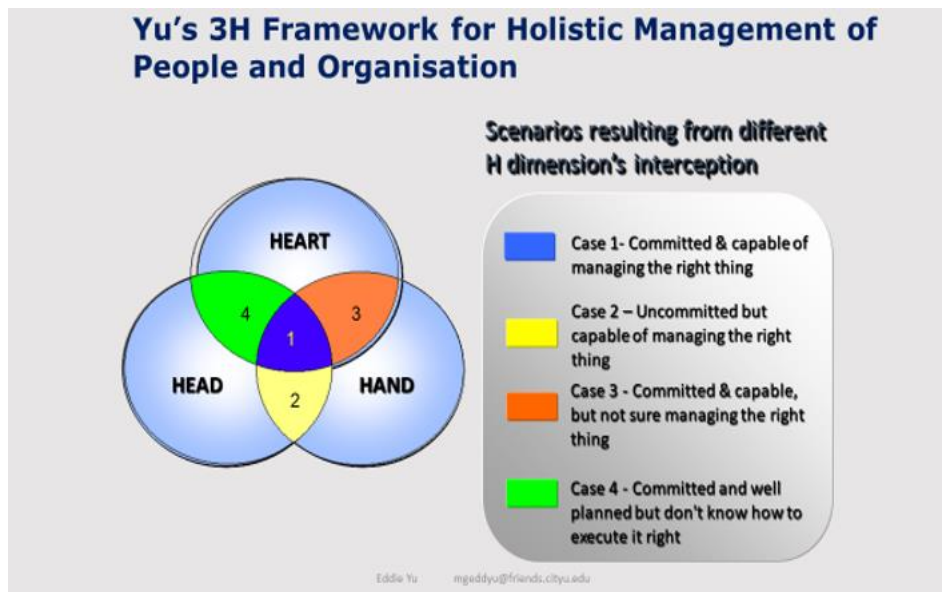
The appointment of two senior project directors who, in hindsight, were ill suited to the task of running such a complex project is a clear indication that the role was not clearly understood. It's a valuable awareness that we were trying to solve a contemporary challenge with traditional solutions. Absent from the solution was a balanced view that in addition to the need for sophisticated planning of resources and materials and the understanding of some of the most technically challenging construction detailing was a vital need for moral and ethical leadership in order to maintain the level of respect required to build an effective team. There is long history in the construction industry of focus on the planning process. The Iron Triangle of time, cost and quality has defined the responsibilities of the project manager for over 50 years (Atkinson, 1999). So often, only

two are regarded as satisfactory measures of project success, time and cost, which, as (Atkinson, 1999) highlights, are at best, guesses, while quality is a subjective value that is a variable subject to people's beliefs and attitudes. Even cost can be regarded as a measure of project progress not of project success.

3H (Yu 2021) provides an analytical framework that is ideally suited to the requirements of international construction projects.

### **How 3H be applied for maximum impact?**

Firstly, and most significantly, 3H can inform the process of reframing the core objectives of project management, which are obsolete and not reflective of the changing objectives of clients and stakeholders. Government and Corporate performances are now being measured by measures of Environmental, Social and Governance impact. Stakeholder interests are replacing shareholder interests (Freeman, 1984) The construction process and the product of the process are very public acts and as such the stakeholders include the public who may be affected by the environmental impact of the construction process. The construction industry is responsible for 19% of the global carbon footprint (Mathur et al., 2021) that places a considerable burden of public responsibility on the industry to acknowledge and respond to public interests. In that regard, the Iron Triangle, of time cost and quality does not go far enough in meeting the responsibilities of the industry and the project managers. H1 and H2 represent the technical and planning factors consistent with the delivery of time cost and quality. As an holistic framework, 3H appropriately addresses values embodied in the measures of ESG by which construction companies, clients and service providers are now measured.



By embracing the people-oriented qualities of the Heart dimension, including aspects of empathy and compassion, project management providers will have an underlying framework which is more naturally oriented towards stakeholder interests than traditional time cost and quality objectives.

Secondly, in a Human Resources capacity for the selection of staff who have the necessary balance of factors of Technical, H3, Planning, H2 and Motivational H1, skills necessary to manage the degrees of complexity of contemporary international projects.

Thirdly, in the training of staff who are appointed to this long duration international projects. Leaders and managers need to understand how team members will react under stress and followers and team members need to know how a leader will react under the same circumstances. Müller and Turner, (2010) suggest that a new paradigm for project management selection and training must include leadership qualities, in addition to technical and management capabilities. The leadership qualities include: self-awareness, motivation, conscientiousness, influence and interpersonal sensitivity, amongst others. The nature of the construction process and the complexity of international construction projects with the reliance of large teams of multi-cultural and diversly skilled individuals and unique cultural norms and values (Hofstede, 1980) The vast array of stakeholders with influence and decision-making power or with offers a unique and appropriate.

(Atkinson, 1999) whose discipline specialism is IT engineering, suggests an alternative set of metrics which reflect the objectives of stakeholder's objectives. The Square Route framework treats the traditional Iron Triangle factors of time, cost and quality as only one of four factors in the measurement of project management services which include Organizational Benefits and Stakeholder Community Benefits. It is an holistic model which reflects the increasing concerns for the environment and the community within which construction takes place.

## **Conclusion**

Project management has been identified as a critical factor in the success of construction projects (Kumara Silva et al., 2016). International projects require an increased number of relationships to contribute to a project. These relationships have become more complex because the forces of international socio-political influence, economics and cultural norms. The construction industry has been slow to embrace research on the significance of relationships to leaders which has been ongoing in commercial business studies. The industry continues to focus on the planning and technical issues described in the Iron Triangle of time cost and quality.

There is a gap in the industry which H3 is ideally positioned to fill which addresses the relational aspects of complex building production.

The greater number of relationships and the greater complexity of relationships results from increases in the quantity and sophistication of technology now used in the design, construction and management of buildings. More specialization means more specialist relationships. The influence of ESG (environmental, social and governance) rules has increased the number of stakeholders who participate in a project during different phases. Specific to China is the involvement of State and Party in higher education and international projects (Chan et al., 1999). This presents a unique suite of relationships and agenda items which are highly influential but for which the motivations are frequently opaque.

The continual increase in complexity of international projects (Lientz et al., 2003) brought about by increased dependence on technology in design and building

management, increases engagement with bigger teams of specialist consultants required during each phase of the project.

Training methods in project management continue to focus on technical competence. Technical competence is essential in an increasingly technical industry, but it is not sufficient, in itself, due to the increased volume of interactions with stakeholders. Successfully delivering complex projects requires more than management it requires strong leadership, which is a more holistic set of skills which includes the ability to manage relationships, motivate teams and align outcome visions, in addition to the necessary strategic and planning principles and the technical competence required.

## **Appendix**

### **A Triangulated Study: A Foundation for Further Study**

Given the time available, we were unable to test a sufficiently large data sample (3 participants) to draw any meaningful conclusions. Despite that, this study was of great value in understanding the process of setting up a data collection exercise and establishing an understanding of an appropriate methodology for a more substantial future study. More specifically, we were interested understanding how to set-up and implement the ALQ questionnaire, undertake the follow up interviews and analyze the subsequent data using SPSS. To that extent, the exercise has been of great value for future study and we have advanced our understanding of data collection and analysis using:  $\chi^2$ , comparative fit index, root mean square error of approximation and the ratio of difference in  $\chi^2$ , despite the fact that the data here presented is of no significant statistical value. The three participants represent a valuable diversity of perspectives: The Line Manager, The Team Leader and a Team member/follower, worked closely together for several years during the period of the project. The small sample is insufficient to establish any levels of statistical significance. However, the study does reveal some interesting information. For example, the consistency in response between the line managers and the team leader are contrasted by the response from the follower. This may not be representative but does raise an interesting focus for future study.

The study was conducted in three parts:

- The Authentic Leadership Questionnaire (ALQ)
- A multi-factorial leadership Questionnaire (MFLQ)
- A follow up interview

### **The Authentic Leadership Questionnaire**

The questionnaire is composed of 16 questions which represent the 4 core values of: ethical behavior, self-awareness, relational transparency and balanced processing. The test has been translated into at least 5 languages and applied in many cultures and nationalities. Challenges have been raised as to the universal applicability of a construct

that is attempting to measure culturally specific values of leadership (Cervo et al 2016). However, studies by Owusu-Bempah et al (2014) in Ghana and New Zealand indicate that although there are idiosyncratic elements in the leadership model, it found commonality across the two cultures. Zhang et al (2012) also undertook a study of leadership in China using the ALQ and concluded that authentic leadership was strongly relationship based. The results were deemed a good reinforcement of the cultural and social aspects of authentic leadership (Cervo et al 2016).

The development of the four factors of Authentic Leadership is important to an understanding of the relevance of the factors to establishing a meaningful definition which can be measured and replicated. Initially the definition developed by Luthans and Avolio (2003), emphasized psychological capacities and an organizational context, which is identified as heightened self-awareness and self-discipline, displayed by a leader and emulated by followers (Luthans and Avolio, 2003). Various studies challenged the notions of hope, resilience and positivity that underpinned Luthans and Avolio's early definitions. Ilies (2005) brought together several alternative definitions to emphasize: balanced processing, relational focused behaviour, authenticity in actions and a heightened level of self-awareness. These factors still form the basis of the definition we have today, upon which Walumbwa (2005) in an attempt to standardize the metrics used in describing AL, has built the Authentic Leadership Questionnaire and in so doing creating a baseline from which comparative studies have been undertaken.

| 名字 Name | Bert Han                                                                         | 偶尔<br>1 | Occasionally<br>2 | 有时<br>3 | Sometimes<br>4 | 相当频繁<br>5 | Fairly often<br>6 | 经常<br>或<br>总是<br>7 | Frequently<br>or<br>always<br>8 |
|---------|----------------------------------------------------------------------------------|---------|-------------------|---------|----------------|-----------|-------------------|--------------------|---------------------------------|
| 1       | 作为领导者, 我所说的正是我的意思                                                                |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 2       | As a leader I say exactly what I mean.                                           |         |                   |         |                |           |                   |                    |                                 |
| 3       | 作为领导者, 我在犯错误时承认错误                                                                |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 4       | As a leader I admit mistakes when they are made.                                 |         |                   |         |                |           |                   |                    |                                 |
| 5       | 作为领导者, 我鼓励每个人说出自己的想法                                                             |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 6       | As a leader I encourage everyone to speak their mind.                            |         |                   |         |                |           |                   |                    |                                 |
| 7       | 作为领导者, 我告诉您一个艰难的事实                                                               |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 8       | As a leader I tell you the hard truth.                                           |         |                   |         |                |           |                   |                    |                                 |
| 9       | 作为领导者, 我完全按照感觉来传达情绪                                                              |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 10      | As a leader I display emotions exactly in line with feelings.                    |         |                   |         |                |           |                   |                    |                                 |
| 11      | 作为领导者, 我展示与行动一致的信念                                                               |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 12      | As a leader I demonstrate beliefs that are consistent with actions.              |         |                   |         |                |           |                   |                    |                                 |
| 13      | 作为领导者, 我根据自己的核心价值观做出决定                                                           |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 14      | As a leader I make decisions that are based on my core values.                   |         |                   |         |                |           |                   |                    |                                 |
| 15      | 作为领导者, 我要求您持有你核心价值观的立场                                                           |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 16      | As a leader, I ask you to take up a position that supports your core values.     |         |                   |         |                |           |                   |                    |                                 |
| 17      | 作为领导者, 我根据高标准的行为作出艰难的决定                                                          |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 18      | As a leader I make difficult decisions based on high standards of ethical cor    |         |                   |         |                |           |                   |                    |                                 |
| 19      | 作为领导者, 我征求对我深恶痛绝的立场提出挑战的观点                                                       |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 20      | As a leader I solicit views that challenge my deeply held positions.             |         |                   |         |                |           |                   |                    |                                 |
| 21      | 作为领导者, 我在做出决定之前分析相关信息                                                            |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 22      | As a leader I analyze relevant data before coming to a decision.                 |         |                   |         |                |           |                   |                    |                                 |
| 23      | 作为领导者, 在得出结论之前, 我仔细聆听不同的观点                                                       |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 24      | As a leader I listen carefully to different points of view before coming to conc |         |                   |         |                |           |                   |                    |                                 |
| 25      | 作为领导者, 我寻求反馈以改善与他人的互动                                                            |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 26      | As a leader I seek feedback to improve interactions with others.                 |         |                   |         |                |           |                   |                    |                                 |
| 27      | 作为领导者, 我准确而恰当地描述了其他人如何看待我的能力                                                     |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 28      | As a leader I accurately describe how others view my capabilities.               |         |                   |         |                |           |                   |                    |                                 |
| 29      | 作为领导者, 我知道什么时候推迟新任务我在重要问题上的立场                                                    |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 30      | As a leader I know when it is time to re-evaluate my position on important iss   |         |                   |         |                |           |                   |                    |                                 |
| 31      | 作为一位领导者, 我表明我了解身体语言对沟通的影响性                                                       |         |                   |         |                |           | 0                 | 1                  | 2 3 4 5                         |
| 32      | As a leader I show I understand how specific actions impact others.              |         |                   |         |                |           |                   |                    |                                 |

| 多因素真实领导力问卷 (MALQ 3.0 团队版成员)                                                     |              |    |           |      |              |       |                      |
|---------------------------------------------------------------------------------|--------------|----|-----------|------|--------------|-------|----------------------|
| Multi-factor Authentic Leadership Questionnaire (MALQ Version 3.0 Team Members) |              |    |           |      |              |       |                      |
| 名字 Name                                                                         | 杨惠琛          |    |           |      |              |       |                      |
| 偶尔                                                                              | Occasionally | 有时 | Sometimes | 相当频繁 | Fairly often | 经常或总是 | Frequently or always |
| 1                                                                               |              | 2  |           | 3    |              | 4     |                      |

| 多因素真实领导力问卷 (MALQ 1.0 版问卷经理)                                                            |         |         |         |           |            |            |                                              |   |   |   |   |   |
|----------------------------------------------------------------------------------------|---------|---------|---------|-----------|------------|------------|----------------------------------------------|---|---|---|---|---|
| Multi-factor Authentic Leadership Questionnaire (MALQ Version 1.0 Line Manager)        |         |         |         |           |            |            |                                              |   |   |   |   |   |
| 名字 Name                                                                                | 偶尔<br>1 | 有时<br>2 | 有时<br>3 | 相当频繁<br>4 | 经常或总是<br>5 | 经常或总是<br>6 |                                              |   |   |   |   |   |
| 1 班组长总是说他的意思                                                                           |         |         |         |           |            |            | kes                                          | 0 | 1 | 2 | 3 | 4 |
| 1 The team leader always said exactly what he meant                                    |         |         |         |           |            |            | > speak their mind                           | 0 | 1 | 2 | 3 | 4 |
| 2 班组长承认了自己的错误                                                                          |         |         |         |           |            |            | th                                           | 0 | 1 | 2 | 3 | 4 |
| 2 The team leader admitted his own mistakes                                            |         |         |         |           |            |            | ctly in line with his feelings               | 0 | 1 | 2 | 3 | 4 |
| 3 班组长鼓励大家说出自己的想法                                                                       |         |         |         |           |            |            | val were consistent with his actions         | 0 | 1 | 2 | 3 | 4 |
| 3 The team leader encouraged everyone to speak their mind                              |         |         |         |           |            |            | re based on his core values                  | 0 | 1 | 2 | 3 | 4 |
| 4 班组长总是说出很真实的真相                                                                        |         |         |         |           |            |            | 显见的立场                                        | 0 | 1 | 2 | 3 | 4 |
| 4 The team leader always told the hard truth                                           |         |         |         |           |            |            | ns that supported our core values            | 0 | 1 | 2 | 3 | 4 |
| 5 班组长表现出的情绪完全符合他的感情                                                                    |         |         |         |           |            |            | 了艰难的决定                                       | 0 | 1 | 2 | 3 | 4 |
| 5 The team leader displayed emotions exactly in line with his feelings                 |         |         |         |           |            |            | s based on high standards of ethical conc    | 0 | 1 | 2 | 3 | 4 |
| 6 团队负责人表现出与他行为一致的信念                                                                    |         |         |         |           |            |            | 他的观点                                         | 0 | 1 | 2 | 3 | 4 |
| 6 The team leader demonstrated beliefs that were consistent with his actions           |         |         |         |           |            |            | lleged his deeply held opinions              | 0 | 1 | 2 | 3 | 4 |
| 7 团队领导根据他的核心价值观做出了决定                                                                   |         |         |         |           |            |            | 数据                                           | 0 | 1 | 2 | 3 | 4 |
| 7 The team leader made decisions that were based on his core values                    |         |         |         |           |            |            | before coming to a decision                  | 0 | 1 | 2 | 3 | 4 |
| 8 团队要求队员们采取支持他们核心价值观的行动                                                                |         |         |         |           |            |            | 不同的观点                                        | 0 | 1 | 2 | 3 | 4 |
| 8 The team leader asked the team members to take to positions that supported their co  |         |         |         |           |            |            | ifferent points of view before coming to con | 0 | 1 | 2 | 3 | 4 |
| 9 团队负责人基于高标准的道德行为做出了艰难的决定                                                              |         |         |         |           |            |            | 互动                                           | 0 | 1 | 2 | 3 | 4 |
| 9 The team leader made difficult decisions based on high standards of ethical conc     |         |         |         |           |            |            | rove interactions with others                | 0 | 1 | 2 | 3 | 4 |
| 10 团队负责人征求了挑战他根深蒂固的观点                                                                  |         |         |         |           |            |            | 约能力                                          | 0 | 1 | 2 | 3 | 4 |
| 10 The team leader solicited views that challenged his deeply held opinions            |         |         |         |           |            |            | ow others viewed his capabilities            | 0 | 1 | 2 | 3 | 4 |
| 11 团队负责人在做决定之前分析了相关数据                                                                  |         |         |         |           |            |            | 重新评估上的立场                                     | 0 | 1 | 2 | 3 | 4 |
| 11 The team leader analyzed relevant data before coming to a decision                  |         |         |         |           |            |            | o re-evaluate his position on important is   | 0 | 1 | 2 | 3 | 4 |
| 12 团队负责人在做出得出结论之前仔细听取了不同的观点                                                            |         |         |         |           |            |            | 影响他人                                         | 0 | 1 | 2 | 3 | 4 |
| 12 The team leader listened carefully to different points of view before coming to con |         |         |         |           |            |            | how specific actions would impact others     | 0 | 1 | 2 | 3 | 4 |

01\_AUTHENTIC LEADERSHIP 13082022.sav [DataSet1] - IBM SPSS Statistics Data Editor

|   | Name | Role         | Age         | T1           | T2           | T3           | T4           | T5         | ME6        | ME7          | ME8        | ME9        | BP10         | BP11         | BP12       | SA13       | SA14         |
|---|------|--------------|-------------|--------------|--------------|--------------|--------------|------------|------------|--------------|------------|------------|--------------|--------------|------------|------------|--------------|
| 1 | 1.00 | Line Mana... | 41-45 years | Frequently   | Fairly Often | Fairly Often | Fairly Often | Frequently | Frequently | Frequently   | Frequently | Frequently | Fairly Often | Frequently   | Frequently | Frequently | Frequently   |
| 2 | 2.00 | Team Leader  | 41-45 years | Frequently   | Frequently   | Frequently   | Frequently   | Not at All | Frequently | Frequently   | Frequently | Frequently | Sometimes    | Frequently   | Frequently | Frequently | Frequently   |
| 3 | 3.00 | Team Mem...  | 31-35 years | Fairly Often | Sometimes    | Frequently   | Frequently   | Frequently | Frequently | Fairly Often | Frequently | Sometimes  | Sometimes    | Fairly Often | Sometimes  | Sometimes  | Fairly Often |

30 - ME6

Visible: 19 of 19 Variables

01\_AUTHENTIC LEADERSHIP 13082022.sav [DataSet1] - IBM SPSS Statistics Data Editor

|    | Name | Type    | Width | Decimals | Label                                          | Values           | Missing | Columns | Align | Measure | Role  |
|----|------|---------|-------|----------|------------------------------------------------|------------------|---------|---------|-------|---------|-------|
| 1  | Name | Numeric | 8     | 2        | Name                                           | None             | None    | 8       | Right | Nominal | Input |
| 2  | Role | Numeric | 8     | 2        | Role                                           | {1.00, Line ...  | None    | 8       | Right | Nominal | Input |
| 3  | Age  | Numeric | 8     | 2        | Age                                            | {1.00, 20-25...  | None    | 8       | Right | Ordinal | Input |
| 4  | T1   | Numeric | 8     | 2        | say exactly what I mean                        | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 5  | T2   | Numeric | 8     | 2        | admit mistakes when they are made              | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 6  | T3   | Numeric | 8     | 2        | encourage everyone to speak their mind         | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 7  | T4   | Numeric | 8     | 2        | tell you the hard truth                        | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 8  | T5   | Numeric | 8     | 2        | display emotions exactly in line with fe...    | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 9  | ME6  | Numeric | 8     | 2        | demonstrate beliefs that are consistent...     | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 10 | ME7  | Numeric | 8     | 2        | make decisions that are based on my ...        | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 11 | ME8  | Numeric | 8     | 2        | ask you to take positions that support ...     | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 12 | ME9  | Numeric | 8     | 2        | make difficult decisions based on high ...     | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 13 | BP10 | Numeric | 8     | 2        | solicit views that challenge my deeply ...     | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 14 | BP11 | Numeric | 8     | 2        | analyze relevant data before coming to...      | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 15 | BP12 | Numeric | 8     | 2        | listen carefully to different points of vie... | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 16 | SA13 | Numeric | 8     | 2        | seek feedback to improve interactions ...      | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 17 | SA14 | Numeric | 8     | 2        | accurately describe how others view m...       | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 18 | SA15 | Numeric | 8     | 2        | know when it is time to re-evaluate my ...     | {.00, Not at ... | None    | 8       | Right | Scale   | Input |
| 19 | SA16 | Numeric | 8     | 2        | show I understand how specific action...       | {.00, Not at ... | None    | 8       | Right | Scale   | Input |

### One-Sample Test

Test Value = 0

| t                                                                   | df     | Significance |             | Mean Difference | 95% Confidence Interval of the Difference |                |
|---------------------------------------------------------------------|--------|--------------|-------------|-----------------|-------------------------------------------|----------------|
|                                                                     |        | One-Sided p  | Two-Sided p |                 | Lower                                     | Upper          |
| say exactly what I mean                                             | 11.000 | 2            | .004        | .008            | 3.66667                                   | 2.2324 5.1009  |
| encourage everyone to speak their mind                              | 11.000 | 2            | .004        | .008            | 3.66667                                   | 2.2324 5.1009  |
| display emotions exactly in line with feelings                      | 2.000  | 2            | .092        | .184            | 2.66667                                   | -3.0702 8.4035 |
| make decisions that are based on my core values                     | 11.000 | 2            | .004        | .008            | 3.66667                                   | 2.2324 5.1009  |
| make difficult decisions based on high standards of ethical conduct | 5.000  | 2            | .019        | .038            | 3.33333                                   | .4649 6.2018   |

### One-Sample Statistics

|                                                                     | N | Mean   | Std. Deviation | Std. Error Mean |
|---------------------------------------------------------------------|---|--------|----------------|-----------------|
| say exactly what I mean                                             | 3 | 3.6667 | .57735         | .33333          |
| encourage everyone to speak their mind                              | 3 | 3.6667 | .57735         | .33333          |
| display emotions exactly in line with feelings                      | 3 | 2.6667 | 2.30940        | 1.33333         |
| make decisions that are based on my core values                     | 3 | 3.6667 | .57735         | .33333          |
| make difficult decisions based on high standards of ethical conduct | 3 | 3.3333 | 1.15470        | .66667          |

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