
The Impact of Leadership Styles on Government Construction Project Success: A Structural Equation Modelling Approach

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Abstract:

Purpose: *The article aims to provide a more informed and empirically based image of leadership styles and government construction project success, using structural equation modeling.*

Design/Methodology/Approach: *The study adopted a cross-sectional with a quantitative research design where a self-administered questionnaire was used to collect. Data was analyzed using SPSS and Structural Equation Modelling (SEM) was used to evaluate the relationships among the set of variables as well as develop a model that explains the success of government construction projects.*

Findings: *Leadership styles contribute to government construction project success. More specifically when project leaders allow stakeholders' participation and communicate effectively about project tasks, goals, strategies, and processes they are able to enhance the stakeholders' levels of commitment, trust, and cooperation that enable them to execute timely, cost-effective, and quality government construction projects.*

Practical Implications: *Theoretically, the study contributes to the body of literature concerning the relationship between leadership styles and government project success. For managers of government construction projects and stakeholders, since leadership styles contribute to government construction projects' success, project managers should ensure that there is adequate internal and external communication with stakeholders through the right channels.*

Originality/Value: *The study examined leadership styles in terms of participation and communication, while future research can examine leadership styles by focusing on laissez-faire, achievement-oriented leadership, and autocratic leadership.*

Keywords: *Leadership, construction projects, cross-sectional analysis.*

JEL Classification: *M10, M12, C30.*

Paper type: *Research article.*

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1. Introduction

Recent developments in project practice research have paid increased attention to government construction projects. This follows the realization that government construction projects play a significant role in economic growth and development (Oyaya, 2016). The contribution of construction projects in both developed and developing countries is considerable; about 80% of total capital assets, 10% of GDP, and more than 50% of the wealth invested in fixed assets, and creates various employment opportunities (Owoo and Lambon-Quayefio, 2018).

In order to transform the economy into a middle-income status and achieve Vision 2040, the government of Uganda has highlighted construction projects as key drivers of growth. It has embarked on several construction projects aimed at boosting the economy; improving the health, standard of living, and development of its citizens. Despite the benefits, various government construction projects in Uganda perform below expectations, have challenges including poor quality, delayed completion, overshoot budgets, and in most extreme cases face total shutdown (Office of Auditor General, 2018; Bogere *et al.*, 2014; Tayebwa, 2014).

Various researchers have tried to explore project success from various perspectives including teamwork (Kariuki, 2015), project managers' skills (Sunindijo, 2015), and total quality management (Jong *et al.*, 2019). A few that have used the Ugandan evidence have concentrated on project communication, individual commitment, social networks, and perceived project performance (Ahimbisibwe and Nangoli, 2010), procurement procedures, and project performance (Onencan, 2020).

Besides most of these studies have examined aspects related to project success based on the stakeholder theory (Dwivedi and Dwivedi, 2021) and others on Resource based view theory (Engelbrecht *et al.*, 2017). As such there is scant theoretical and empirical research on leadership styles and the success of government construction projects. As findings on government construction projects vary across nations, some studies are needed in the local setting to increase the relevance and accuracy of results.

Literature has not distinctively identified the role of leadership styles on project success yet it is a critical factor in ensuring project success. This research thus adds to the literature by taking results from a geographically distinct context, a developing country such as Uganda. Also, this research uses the path-goal theory to explain the relationship between leadership styles and success of government construction projects in Uganda.

Consequently, this article aims to provide a more informed and empirically based image of leadership styles and government construction project success, using structural equation modeling. Therefore, this article seeks to attain the following research objectives:

- To examine the relationship between leadership styles and government construction project success in Uganda.
- To generate a model that explains government project success.

This article discusses the impact of leadership styles on government construction project success and it is organized as follows; first, the empirical literature is presented. The theory and hypothesis are then presented, followed by the study methodology, results, and discussion. The final sections of the article presents the conclusion, implications, and future research direction.

2. Literature Review

2.1. Path Goal Theory

To help understand the role of leadership styles in project success, the path-goal theory as reformulated by House (1996) was adopted. The theory assumes that there is no one best or unique style of leadership that transcends all project situations (House, 1996). The theory explains that leaders that choose leadership styles that suit the project environment clarify the path stakeholders take to attain individual and project goals and remove roadblocks that stand in the way to achieve project goals (Northouse, 2016; House, 1996).

Such leaders provide expected performance levels and means of achieving them and guide stakeholders to choose the best path for reaching their individual goals (Mwaisaka, 2019; House, 1996). Stakeholders are assigned specific duties for which they are held accountable (Babirye *et al.*, 2022). Armed with a clear path, stakeholders become confident, motivated, enthusiastic, and empowered to work hard to deliver set project goals (Atsebeha, 2016; Norena-Chavez and Thalassinis, 2022; Thalassinis *et al.*, 2023).

Therefore, project leaders need to provide enough information about tasks and also allow their participation in project decisions in order for stakeholders to accomplish tasks (Northouse, 2016). This way a project leader reduces the roadblocks that occur in the path of the project stakeholders and makes their journey easier toward the achievement of project goals (Mwaisaka *et al.*, 2019).

In addition, Grimm (2018) confirms that this makes stakeholders feel satisfied to commit, trust and cooperate towards the project while performing project activities when they have enough information on how the project benefits them. Accordingly, the path-goal theory advances participation and communication leadership styles among others that can be adopted by leaders to achieve the desired level of project performance (House, 1996). Under communication style, the theory explains that leaders exchange information with stakeholders; give chance to stakeholders to be heard; and emphasize collaborative and positive interactions as well as self-satisfying relationships that enhance work unit cohesion, reduce work stress and

attrition (Atencio, 2012; House, 1996). Since government construction projects involve group tasks performed in a series of interdependent phases that form the life cycle of projects (Archibald *et al.*, 2012).

The activities and tasks in one phase feed into the next phase and must be completed first before another phase sets in (Archibald *et al.*, 2012). As per the theory, collaborative interactions among project teams, and sharing information on each completed phase activity (reports) enable a smooth project transition from one phase to another.

Under participative leadership, the theory explains that when leaders involve stakeholders in defining performance goals, strategies for executing tasks, standards, and rewards, project targets become clear, and stakeholders feel valued (Monzani *et al.*, 2015; House, 1996). This results in their motivation, commitment, trust, and support as well as the acquisition of creative change ideas and knowledge that trigger project success (Taylor, 2018; Gyasi, 2015).

2.2 Leadership Styles

Leadership style refers to the approach, method, outlook (Hersey and Blanchard, 1982), attitude, and behavior that a project leader employs to influence stakeholders toward the accomplishment of project objectives (Nakato, 2019). Accordingly, leaders choose styles they are comfortable with (House, 1996) and believe will motivate those individuals who can affect or be affected by the project (Freeman, 1984) to accomplish set goals.

2.3 Project success

A construction project is regarded as successful when it's completed on time, and within budget while meeting quality expectations (Shah, 2016; Musekura, 2013; Pinto, 2010). The desire to achieve set government construction project goals worldwide has become a concern to project leaders (Pollack *et al.*, 2018; Tunji-Olayeni *et al.*, 2016). This sets the foundation of the next section which will review literature on the relationship between leadership styles and project success as hypothesised in the study.

2.4 The Relationship between Leadership Styles and Project Success

Leadership influences and facilitates the performance of stakeholders to achieve desired project goals (Cheong and Mustafa, 2017). Effective leaders always value stakeholders, tap into their skills, and knowledge and allow their participation in project decisions (Nemaei, 2012). Adopting a suitable leadership style such as participation and communication gives rise to quality and acceptable decisions as well as motivated stakeholders (Famakin and Abisuga, 2016; Yukl, 2006). Similarly, it leads to stakeholder engagement, acquisition of creative change ideas, increased

stakeholder performance (Taylor, 2018), and reduction of conflicts and resistance of stakeholders which are all essential for project success (Akpoviroro *et al.*, 2018).

The participative leadership style requires leaders to involve stakeholders in defining stakeholder performance goals, strategies for executing project tasks, and setting performance standards and rewards (Monzani, Ripoll, and Peiro, 2015; House, 1996). This way leaders are able to incorporate stakeholders' views when making the final decision (Mwaisaka, 2019; Somech, 2005).

These leaders avoid making decisions on their own (Bhatti, Ju, Akram, and Bilal, 2019), and act as coaches who facilitate and allow stakeholders to freely express their ideas and suggestions during project planning, formulation, and implementation process (Nemaei, 2012). Such gives stakeholders an opportunity to seek for clarification on the set project objectives and tasks through their individual or group consultations (Rok, 2009). It also makes stakeholders feel valued as part of management (Kiplangat, 2017).

Hence, this results in their motivation, commitment, trust, and support as well as the acquisition of creative change ideas and knowledge (Akpoviroro, Bolarinwa and Owotutu, 2018), that enable the completion of quality projects on time and within the budget (Taylor, 2018; Famakin and Abisuga, 2016; Gyasi, 2015).

In addition, project success requires the cooperation and support of all stakeholders involved in the project (Doloi, 2009). Stakeholders at times share varied sentiments about the project that affect its smooth execution (Nangoli *et al.*, 2016). This calls for the harmonization of the thoughts and preferences of different project stakeholders to avoid conflicts that affect project success (Roberts and Okereke, 2017). Communication and participation of stakeholders periodically help leaders to create a sense of shared values about the project that help to build support and cooperation among stakeholders (Dolatabadi and Safa, 2010).

For example, periodic stakeholders' consultation and exchange of ideas at the project design and execution stage enables leaders to develop empathy and a sense of ownership among stakeholders that triggers their support and cooperation (Daniel, Maxwell, Mercy, and Tolulope, 2019). It also enhances stakeholders' connection to the project and inspires them to cooperate and work hard to ensure that they realize the set project (Mwaisaka, 2019).

Moreover, consulting and exchange of ideas with stakeholders especially the local community on matters pertaining to tasks, execution plans, rewards, designs, project goals, and benefits, makes them feel part of and indebted to the project (Kiplangat, 2017). This triggers their cooperation and offers support to the project to ensure that the project succeeds (Ndifuna, 2015; Williams and Walton, 2013).

Thus, consulting stakeholders throughout the project life is a key pillar towards the attainment of successful projects (Ofori, 2013).

Communication leadership has recently gained prominence as one of the factors that contribute to project success (Kwofie, Fugar, and Adinyira, 2015). Communication involves an exchange process of relevant information, interpreting and effectively disseminating it among internal and external stakeholders (Mugo and Moronge, 2018). This information may include performance reports, requested changes, drawings, architectural designs, specifications, project objectives, rules, roles, and tasks construction methods (Muszynska, 2015; Olsson and Johansson, 2011).

It is on record that projects post a series of interdependent group activities, stakeholders with varying interests, competencies, backgrounds, and objectives (Ani, Oliver, Okpala, Dyages, and Akese, 2017; Alaloul *et al.*, 2016). Communication helps to build harmony, trust, commitment, satisfaction, interactions and reciprocal collaborative relationships among project stakeholders that enable project success (Ssenyange *et al.*, 2017:78; Bilczynska-Wojcik, 2014; Coombs, 2007).

Therefore, it is important for project leaders to communicate effectively with different groups of stakeholders to remove any roadblocks that stand in the way of achieving project goals (Grimm, 2017; House and Mitchell, 1974).

Construction projects involve a variety of uniquely coordinated activities and resources, these require project managers to exhibit unique skills and competence in communication to be able to lead and coordinate all these activities in order to complete the project within time, cost, and quality (Ssenyange *et al.*, 2017). Weldearegay (2014) adds that the purpose of communication in construction projects whether informal, formal, internal, or external is to facilitate the exchange of ideas, and clarify roles and misunderstandings in order to execute the project successfully.

In a study conducted by Maame (2012) on the effect of communication leadership on construction projects in Ghana, it was revealed that communication is a vital factor in project success and whenever it is poor projects there is project delay, escalation of costs, and abandonment of projects.

In fact, Safapour, Kermanshachi, Kamalirad, and Tran (2019) conceptualized that the more stakeholders acquire timely information and interact with project leaders the less role ambiguity and conflict there is in a project toward success. Several studies have continued to report and document a positive relationship between leadership styles (participation and communication) and project success.

However, few scholars revealed that there is a negative relationship between leadership styles and project success (Guangdong *et al.*, 2017; Saha and Kumar, 2017; Leenders *et al.*, 2003; Watt, 2014). This justifies the need for this study.

3. Methodology

3.1 Research Design and Approach

The study adopted a cross-sectional with a quantitative research design where a self-administered questionnaire was used to collect. Data was analyzed using SPSS and Structural Equation Modelling (SEM) was used to evaluate the relationships among the set of variables as well as develop a model that explains the success of government construction projects.

3.2 Population and sample procedure

This study adopted a sample of 100 projects from a population of 120 government construction projects implemented by KCCA (Krejcie and Morgan, 1970). These projects were stratified according to the divisions that make up Kampala namely; central, Makindye, Rubaga, Nakawa, and Kawempe. The researcher chose a stratified random sampling method to reduce bias and to get deeper insights from all respondents in all the divisions (Sharma, 2017).

Additionally, the limited availability and efficiency of internet communication services in Uganda could not support timely data collection by mailing questionnaires to respondents (Nsereko *et al.*, 2018). From each selected project 4 participants (project manager, contractor, engineer, and local council leader) were selected based on their roles, experience, and perception to arrive at 400 participants for the study (Polit and Beck, 2012; Pinsonneault and Kraemer, 1993).

Useable questionnaires were received from 335 out of 400 respondents representing a response rate of 83.8% adequate enough for analysis ((Debela *et al.*, 2021; Mugambi and Kinyua, 2020). In this study, the unit of analysis was a government construction project while the unit of inquiry were the stakeholders.

3.3 Validity and Reliability

The internal reliability of the questionnaire was assessed by computing the Cronbach's Alpha coefficients using the inter-item test method (Cho and Kim, 2015; Saunders *et al.*, 2007), and as seen in Table 1 below all results for the variables are above 0.7 confirming that the measurement instrument was reliable (Bajpai and Bajpai, 2014; Nunnally, 1967).

Table 1. Reliability results

	Cronbach Alpha Coefficient
Leadership Styles	0.869
Project Success	0.868

Source: Primary data.

The validity of the study instrument which is the extent to which given dimensions of the study variables adequately represented the core construct was assessed through first content validity where expert opinions from researchers and colleagues were sought which helped build a content validity index (CVI). In addition, convergent validity and discriminant validity were tested by assessing the Average Variance Extracted (AVE) and composite reliability for each of the study variables.

As seen in Table 2, the results of composite reliability of all latent variables are above 0.7 (leadership styles=0.854, project success=0.847), and the Average variance extracted of all latent variables is above 0.5, which meets the acceptance level (Henseler *et al.*, 2015; Field, 2009; Fornell and Larker, 1981). So, this reveals that the construct measures were valid and could correctly measure the study variables.

Table 2. Reliability and Validity results

	<i>Composite Reliability</i>	<i>Average Variance Extracted (AVE)</i>
Communication	.877	.641
Participation	.831	.552
Leadership Styles	.854	.597
Cost	.834	.626
Quality	.844	.574
Time	.864	.761
Project Success	.847	.654

Source: Primary data.

3.4 Measurement of Variables

Project success was measured using time, cost, and quality (Atkinson, 1999; Chan, 2003). Leadership styles were operationalized into participation and communication. Participation was measured using modified tools of Arnstein (1969) adopted by Kanungo (1982), and communication was measured using an abridged version of Goldhaber and Rogers (1979) communication audit survey questionnaire also adopted by Nangoli (2010).

3.5 Data Analysis

During analysis, Quantitative data were analyzed using Statistical Package for social science (SPSS) 27. The researcher conducted quantitative data analysis through descriptive and inferential statistical analysis (Bulti, 2016). Descriptive statistical analysis provided a summary of the population or the sample under study while Inferential statistics (structural equation modeling) aided the researcher to test for a relationship between study variables (Sinkovics and Alfoldi, 2012; Marshall and Jonker, 2011; Zikmund *et al.*, 2009).

A two-step method as proposed by Anderson and Gerbing (1988) was followed. The first stage involved the estimation of the measurement model using confirmatory factor analysis and then estimating the hypothesized structural model using structural equation modeling as the second stage. The structural model fit helped to assess whether the hypothesized theory matched the collected data.

Generally, the structural equation model was assessed for validity using the goodness of fit indices as summarised in table 3 before assessing whether the structural relationships in the model were consistent with theoretical expectations (Hair *et al.*, 2010; 2018)

Table 3. Summary of fit indices used in this study

Fit index	Acceptance level	Remarks
Absolute fit indices		
GFI	0.90 or greater	a value close to 1 indicates a perfect fit
RMSEA	0.05 – 0.08	value less than 0.50 is considered
Incremental fit indices		
NFI	0.90 or greater	a value close to 1 indicates a perfect fit
TLI	0.90 or greater	a value close to 1 indicates a perfect fit
CFI	0.90 or greater	a value close to 1 indicates a perfect fit
Parsimonious fit indices		
CMIN/DF	$1.0 \leq \chi^2/df \leq 5$	The lower limit is 1.0, the upper limit is 3.0 or as high as 5

Source: Hair *et al.* (2010; 2018).

4. Findings

4.1 Respondents Profile

Out of the 335 questionnaires received and used, males accounted for 59.1% compared to females who accounted for 40.9%. Again, in terms of age, the majority of project stakeholders who participated in the study were aged between 31-45 years (54.6%), followed by those aged between 46-65 (20.9%). Those aged between 18-30 years (17.6%) came next, followed by those aged 66-74 years (5.7%) and those above 75 years came last (1.2%).

In terms of the highest level of education, the majority of government construction project stakeholders who participated in this study were diploma qualification holders (31.0%), followed by bachelor's degree holders (29.6) and postgraduate holders followed (17.6%).

Results also revealed that those with a master's degree accounted for only 3% and certificate holders were only 9%. These results showed that the majority of the respondents were knowledgeable and could easily understand the items in the questionnaire which partly accounted for a good response rate of 83.8%.

Table 4. Age group

variable	measurement	count	Valid percentage
Age group	18-30	59	17.6
	31-45	183	54.6
	46-65	70	20.9
	66-74	19	5.7
	75+	4	1.2
	Total	335	100.0

Source: Primary data.

Table 5. Highest level of education

variable	measurement	count	Valid percentage
Highest level of education	Primary	7	2.1
	O' Level	13	3.9
	A' Level	12	3.6
	Certificate	30	9.0
	Diploma	104	31.0
	Bachelors	99	29.6
	Postgraduate Degree	59	17.6
	Masters	10	3.0
	Others	1	0.3
Total	335	100.0	

Source: Primary data.

4.2 Descriptive Statistics for Latent Variables

A summary of the standard deviation and mean scores for leadership styles and project success variables is indicated in Table 6. As seen in Table 6 the mean score for leadership styles is 3.559 and 3.623 for project success on a 6 Likert scale with standard deviations of 0.819 for leadership styles and 0.886 for project success. Because of small standard deviations compared to mean values, it is clear that the data was well spread out, data points were close to the means and hence calculated means highly represented the observed data (Warsame, 2021; Field, 2018). This also implied that the respondents' understanding of study variables and the views about the questions asked were closely the same (Bashir, 2018).

Table 6. Descriptive statistics

Latent variables	N	Min.	Max.	Mean	Std. Error	SD
Leadership Styles	335	1.000	5.882	3.559	0.049	0.819
Project Success	335	1.375	5.938	3.623	0.048	0.886

Source: Primary data.

4.3 Measurement Model Estimation

To arrive at valid conclusions in the study it was necessary to use a measurement model that was valid (Field, 2017). Therefore, in this study, confirmatory factor

analysis (CFA) with the Amos program was conducted for leadership styles and project success to assess the validity and reliability of the measurement models for this study.

CFA Measurement model for leadership styles:

The leadership styles concept was measured using participation and communication. Communication originally had 16 items (LDCM1-LDCM16) and participation had 18 items (LDPT1 - LDPT18). The initial stage of the inter-item correlation matrix revealed that communication dimension items like LDCM5, LDCM6, LDCM7, LDCM10, LDCM12, LDCM14, LDCM16, and participation items like LDPT3, LDPT4, LDPT5, LDPT6, LDPT8, LDPT9, LDPT12, LDPT14, LDPT15, LDPT16 were deleted at EFA because their loadings were below the recommended 0.5 thresholds.

On subjecting the retained items (EFA model) to CFA, communication dimension items like LDCM1, LDCM8, LDCM11, and LDCM13 and participation items like LDPT13, and LDPT18 were removed.

The removal of the weakly correlated items reduced the number of items of the construct as it was conceptualized. In addition, the retained items were significant and had standardized factor loadings higher than the recommended level of 0.5 thus preserving the meaning of factors (Hair *et al.*, 2010; 2018).

These findings confirmed the validity of the final model with excellent model fit statistics for the leadership styles construct as the Confirmatory analysis fit indices are within the recommended range (Hair *et al.*, 2010), for example, the Goodness – of fit (GFI) is greater than 0.95, Comparative fit index (CFI) is greater than 0.95 and Tucker – Lewis Index (TLI) is greater than 0.95.

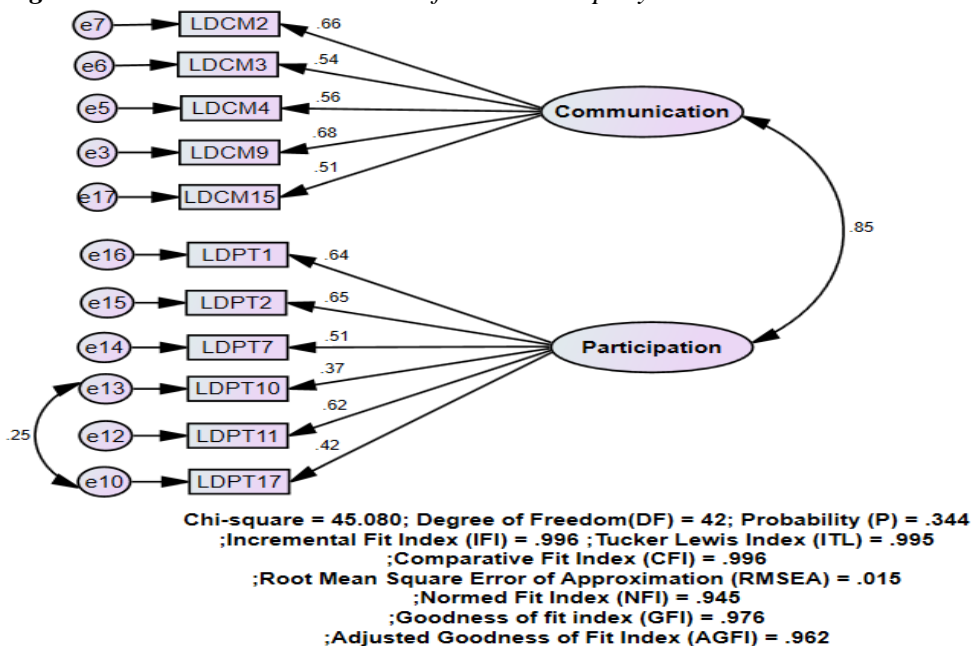
CFA Measurement model for project success:

Project success was measured using Time, Quality, and Cost. Time originally had 6 items (PSTM1- PSTM16), Cost had 4 items (PSCO1 – PSCO4) and Quality had 6 items (PSQU1- PSQU6). The initial verification of the inter-item correlation matrix revealed that Quality item PSQU3, time dimension items PSTM3, PSTM6, and cost dimension item PSCO2 were deleted by EFA because the loadings were below 0.5.

The remaining items were subjected to a CFA. Under CFA, the EFA model was re-specified by iteratively removing quality items PSQU1, PSQU6; cost item PSCO4, and time item PSTM3.

During re-specification by deleting those items that did not meet the acceptable criteria and retained only those that met the criteria. During the re-specification process, we aimed at retaining at least three items for each construct because constructs with a lesser number are viewed as weak and unstable (Costello and Osborne, 2005).

Figure 1. CFA Measurement Model for Leadership Styles



Source: Primary data

Table 7. Standardised Model Estimates for Leadership Styles

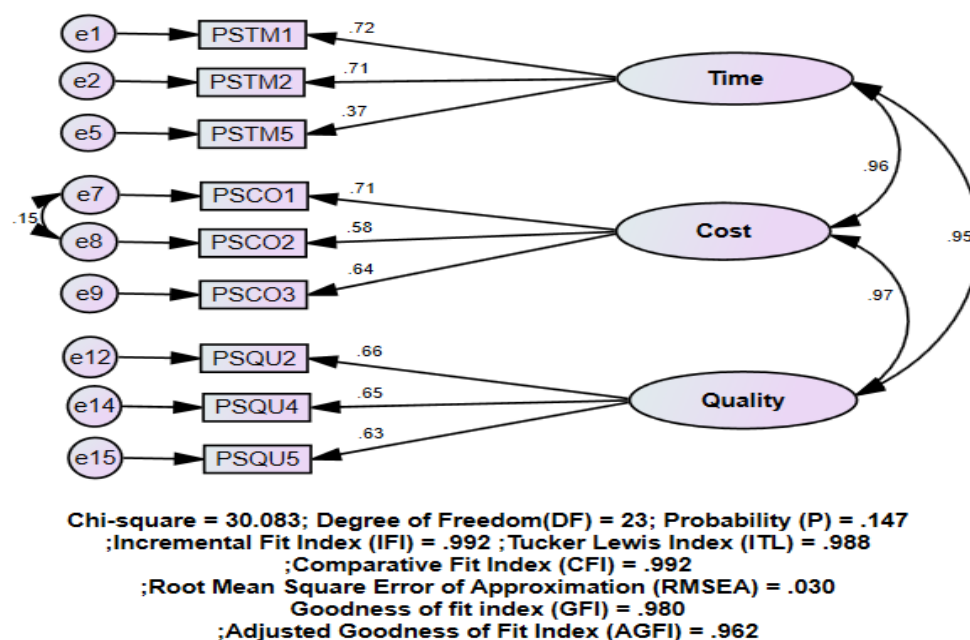
			β	S.E.	C.R.	p
LDCM15	←	Communication	.514			
LDCM9	←	Communication	.680	.160	7.929	***
LDCM4	←	Communication	.559	.153	7.134	***
LDCM3	←	Communication	.538	.149	6.968	***
LDCM2	←	Communication	.658	.163	7.803	***
LDPT17	←	Participation	.420			
LDPT11	←	Participation	.621	.230	6.356	***
LDPT10	←	Participation	.373	.157	5.661	***
LDPT7	←	Participation	.507	.213	5.816	***
LDPT2	←	Participation	.653	.220	6.470	***
LDPT1	←	Participation	.638	.242	6.419	***
LDPT17	←	Participation	.420			

*** p<.01

Source: Researcher's own construction.

At the end of this process 3 items for Time (PSTM1, PSTM2, PSTM5), 3 items of Cost (PSCO1, PSCO2, PSCO3) and 3 items of Quality (PSQU2, PSQU4, PSQU5) were retained in the final model. The retained items were significant and had standardized factor loadings higher than the recommended level of 0.5 thus preserving the meaning of factors. These findings confirmed the validity of the final model with excellent model fit statistics for the project success construct (see table 4.6). Again, results under figure 1.2 below reveal that the Confirmatory analysis fit indices are within the recommended range (Hair et al 2010), for example, the Goodness – of fit (GFI) is greater than 0.95, the Comparative fit index (CFI) is greater than 0.95 and Tucker – Lewis Index (TLI) is greater than 0.95.

Figure 2. CFA Measurement Model for Project Success



Source: Researcher's own construction.

Table 8. Standardised Model Estimates for Project Success

		β	S.E.	C.R.	p
PSCO1	← COST	.708			
PSCO2	← COST	.578	.061	10.236	***
PSCO3	← COST	.636	.064	10.238	***
PSTM1	← TIME	.717			

PSTM2	←	TIME	.707	.066	11.428	***
PSTM5	←	TIME	.372	.065	6.171	***
PSQU2	←	QUALT	.660			
PSQU4	←	QUALT	.651	.108	9.967	***
PSQU5	←	QUALT	.632	.110	9.725	***
*** $p < .01$						

Source: Researcher's own construction.

4.4 Structural Equation Modeling

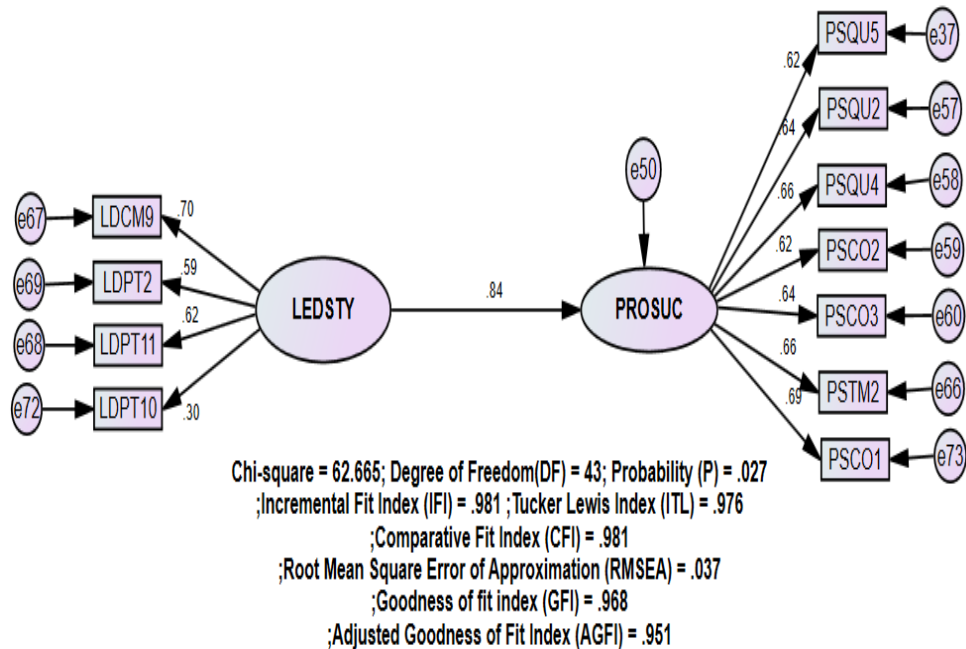
Structural equation modeling (SEM) was employed to measure the relationships among study variables following the set study hypothesis. Prior to undertaking structural equation modelling, it was necessary to establish how well the manifest variables converged as valid indicators of the global latent variables (Bedi, Kaur, and LaI, 2017; Anderson and Gerbing, 1988). As such, two (2) models (leadership styles, and project success) were assessed for the goodness of fit and subsequently, the manifest and global latent variables were specified into a structural model to represent exogenous and endogenous constructs.

One exogenous variable (leadership styles) and one endogenous variable (project success) were specified in the structural model. Conversely, not all manifest variables of the latent constructs in CFA were retained while estimating the structural model. Accordingly, the CFA measurement model for leadership styles confirmed eleven (11) manifest variables as indicators of leadership styles. However, only four manifest variables namely; LDCM9 for communication and LDPT2, LDPT2, LDPT10, and LDPT11 for participation were retained in the structural model as measurements of the leadership styles variable after estimating the structural model to establish model fit.

Equally, the project success measurement model established nine manifest variables as indicators of project success in the model. However, four manifest variables (PSTM1, PSTM2, PSTM5, and PSCO1) were dropped while estimating the overall structural model for theory fit. As such, the endogenous variable project success in the final structural model was measured by seven (7) manifest variables (PSQU2, PSQU4; PSQU5 for quality, PSTM2 for time, and PSCO1, PSCO2, PSCO3 for cost). Again, premising on Hair *et al.* (2010:646), all the indices for the goodness of fit were within the acceptable range (Chi-Square (χ^2) = 62.665, the degree of freedom = 43, CFI = .981 and TLI = .976, AGFI = .951 and lastly RMSEA was .037).

Hence, was subsequently used to test for the direct relationship between leadership styles and project success as hypothesized in the study. The results for the overall structural equation model that explains project success are shown in Figure 3 below.

Figure 3. Overall Model Explaining Government Construction Project Success



Source: Researcher’s own construction.

Hypothesis testing:

It was hypothesized that there is the relationship between leadership styles and project success. Accordingly, testing direct paths between leadership styles and project success was conducted and the results are reflected in Table 9.

Table 9. Structural Model Estimates

			Unstandardiz ed coeff	S.E.	C.R	Standardise d coeff	P
Project success	←	Leader styles	.756	.090	8.44 0	.840	***

Source: Primary data.

As seen in the Table above, results indicate that there is a positive relationship between leadership styles and project success (Beta=0.840, SE=0.90, CR=8.440). Thus, that hypothesis was supported. This means that positive changes in the leadership style are associated with positive changes in project success. In other words, when leaders adopt a suitable leadership style in projects such as communication and allow the participation of stakeholders, projects are completed on time, within the set cost while meeting quality specifications.

5. Discussion

5.1 Leadership Style and Project Success

For a while, the debate on the success of government-funded construction projects has been ongoing, earlier studies established factors like team effectiveness (Azmy, 2012), professional teamwork (Mungeria, 2012), and stakeholder engagement process (Bal *et al.*, 2013) as key in influencing the success of government-funded construction projects. Yet attaining success remains a big challenge to most government construction projects specifically in developing countries like Uganda.

The study findings, however, contribute to this debate by showing how leadership styles influence the success of government-funded construction projects in Uganda. Indeed, the study results revealed that there is a positive relationship between leadership styles and project success. This implies that leaders that adopt suitable leadership styles such as communication and participation during the implementation of projects realize project success.

Drawing from the path-goal theory, these leaders are flexible; choose leadership styles that correspond to the project situation and nature of the stakeholders to achieve project success. The above result is not surprising because Rana *et al.* (2019) already established that there is no single leadership style that fits all project situations. In line with this, Oyaya (2016) and Robbins (2001) alluded that government construction projects that post good results have leaders who keep interchanging leadership styles depending on the project situations.

In agreement, Zulch (2014) and Martin (2012) discovered that this increases stakeholders' motivation and zeal toward achieving set project goals. In addition, Olowoselu *et al.* (2019) and Bulti, (2016) discovered that adopting suitable leadership styles enhances stakeholders' empowerment and satisfaction, and the stakeholders' work effectiveness. Lategan and Fore (2017) noted that leadership is a skill that is different from other skills and most of these skills manifest in the style a leader adopts.

Therefore, government construction project managers that are flexible and have the ability to persuade stakeholders by adopting suitable leadership styles depending on the situation always get the best results for projects (Acquah and Xing, 2021; Frigenti and Corminos, 2002). This finding lends support to the path-goal theory which posits that leaders that are flexible and adopt appropriate leadership styles are able to clarify and remove obstacles that stand in the path stakeholders take to attain their goals and organization goals.

The theory notes that leaders who choose styles they are comfortable with that suit project situations and stakeholders always motivate stakeholders to accomplish set

goals. In this study, it was confirmed that leadership styles especially participation and communication affect government construction project success.

6. Conclusion, Implications and Future Research Direction

6.1 Conclusion

From the results of this study, it can be concluded that leadership styles contribute to government construction project success. More specifically when project leaders allow stakeholders' participation and communicate effectively about project tasks, goals, strategies, and processes they are able to enhance the stakeholders' levels of commitment, trust, and cooperation that enable them to execute timely, cost-effective, and quality government construction projects.

6.2 Managerial implications

This study provides both theoretical and practical implications. Theoretically, the study contributes to the body of literature concerning the relationship between leadership styles and government project success.

For managers of government construction projects and stakeholders, since leadership styles contribute to government construction projects' success, project managers should ensure that there is adequate internal and external communication with stakeholders through the right channels to make project goals, benefits, and tasks clear, stakeholders and managers understand each other which limits on disagreements in projects that may delay projects.

Secondly, there is a need to ensure openness and constant communication during project implementation to help a project transit smoothly from one project stage to another easier. The existence of clear and open communication limits waste reworks, and costly litigations as well as fosters stronger cooperation among stakeholders.

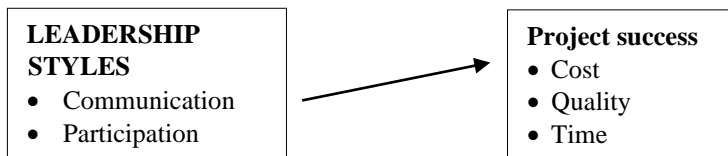
Again, project managers should adopt leadership styles (communication and participation) that suit the nature of the project situation and stakeholders such as participation leadership that encourages delegation of authority, consultation, and joint decision-making, stakeholders and leaders strive hard to complete quality projects on time and within the set budget.

Lastly, project managers should devise strategies to realize project success. This can be achieved by adopting communication and participation leadership styles that suit the nature of stakeholders and the project situation. Once this is in place stakeholders will become committed and cooperative and trust each other to deliver projects as planned.

6.3 Model that Explains Construction Project Success

The second objective of this study was to develop a model that success of government funded projects. From the review of literature and path goal theory it was hypothesised that that leadership styles especially communication and participation explain government construction project success. This relationship is diagrammatically illustrated in Figure 4.

Figure 4. Hypothesised model that explains project success



Source: Researchers conceptualisation.

To generate a model that explains project success, structural equation modeling was conducted in order to confirm the hypothesised model in Figure 4. Responses in form of quantitative data were solicited from project stakeholders to capture their views on whether leadership styles especially communication and participation explain project success. Accordingly, a model that explains project success was developed as indicated in Figure 3. As seen in Figure 3 the model reveals that to realise project success project leaders need to adopt suitable leadership styles especially communication and participation leadership.

Specifically, with communication, project managers should ensure that Information about project is shared adequately among stakeholder. Under participation, project leaders should ensure project stakeholders participate in project design, participate in deciding the project site and also participate in deciding the time frame that project will take to realise project success. As such the path they take to realise project goals will be made easier. Again, results revealed that government project success means adherence to project cost, time and quality as the case was in the hypothesised model (Figure 4).

In terms of time project leaders who adopt suitable leadership styles should aim at meeting the set time frame for the project to be judged successful.

In terms of quality measurement project success means improvement in the performance of stakeholders, project outputs meeting stakeholder's expectations and ensuring that project comply with the set project requirements. In terms of quality project leaders should ensure that reliable project costs estimates are always set before commencement of the project; ensure that the total cost of the project is always below the authorised budget and lastly ensure that final budget for each phase of the project is essentially the same as planned.

6.4 Limitations and Research Direction

Despite the highlighted significant contributions of this paper, it also presents some limitations and opportunities for future researchers. First, the study examined leadership styles in terms of participation and communication. Therefore, future research can examine leadership styles by focusing on laissez-faire, achievement-oriented leadership, and autocratic leadership. Also, the study has been conducted in a developing country, Uganda. Future research should look into the comparison between developed countries and less developed countries in this regard.

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Appendix 1: Exploratory Factor Analysis for Leadership Styles (Rotated component matrix)

<i>Item scale</i>	commu nication	particip ation
LDCM1 Information concerning project activities is always shared to project stakeholders	.777	
LDCM2 The language used in project correspondences is familiar to all project stakeholders	.572	
LDCM3 The channel used to share information is liked by all project stakeholders	.625	
LDCM4 New project Information usually circulates amongst project stakeholders on time	.595	
LDCM8 Meetings are held to share information regarding performance of project tasks	.796	
LDCM9 Information about project progress is always shared among project members	.585	
LDCM11 Project targets are always explained to project stakeholders in a meaningful way	.639	
LDCM13 Sharing of information has improved commitment among project stakeholders	.589	
LDCM15 The project information provided clearly indicates the roles and responsibilities of each stakeholder	.526	
LDCM5 There are reliable avenues for receiving reactions about project activities from project stakeholders	.322	
LDCM6 Opinions from project stakeholders are always given attention	.124	
LDCM7 Reactions from project stakeholders are always given attention	.452	

LDCM10	Interactions amongst project stakeholders is guided by a communication policy	.278
LDCM12	Sharing of information has resulted into improved cooperation among project stakeholders	.301
LDCM14	Sharing of information has improved the level of trust among project stakeholders	.426
LDCM16	Sharing information among stakeholders improves performance of projects	.311
LDPT1	Project stakeholders are always asked for suggestions on how to carry out project assignments	.567
LDPT2	Project stakeholders participate in project design.	.554
LDPT7	Project supervisors/ leaders do not require project stakeholders to get their input or approval before making decisions	.511
LDPT10	Project stakeholders participate in deciding the project site.	.526
LDPT11	Project stakeholders participate in deciding the time frame for the project.	.512
LDPT13	Project stakeholders participate in deciding the sanction measures for the project misuse.	.608
LDPT17	Project stakeholders participation has improved the level of cooperation among project stakeholders	.670
LDPT18	Project stakeholder's participation contributes to project success	.624
LDPT3	Project stakeholders participate in needs identification for the project.	.434
LDPT4	Project stakeholders participate in the monitoring and evaluation of the project.	.034
LDPT5	Project stakeholders are left to make decisions on their own without consulting their leaders.	.345
LDPT6	Duties and tasks are delegated amongst project stakeholders according to the capacity of each project stakeholder	.278
LDPT 8	Project supervisors/leaders permit project stakeholders to get the necessary information from them and then make decisions on their own.	.389
LDPT 9	Project stakeholders are involved in making decisions on how project tasks and duties should be performed	.287
LDPT12	Project stakeholders participate in deciding the budget for the project	.345
LDPT14	Project stakeholders participate in deciding the sanctions imposed for not participating in project maintenance.	.456
LDPT15	Project stakeholders' participation has improved on their commitment towards projects	.326
LDPT16	Project stakeholders' participation has improved the level of trust among project stakeholders	.434
<i>Eigen Value</i>		13.393 7.429
<i>Variance %</i>		39.391 21.849
<i>Cumulative %</i>		39.391 61.240

Source: Researcher's own construction.

Appendix 2: Exploratory Factor Analysis results for Project Success (Rotated component matrix)

Item scales	time	cost	quality
PSTM1	Reliable time estimates are often set ahead of project	.705	
PSTM2	Project stakeholders are always committed to beating set deadlines	.733	
PSTM4	The project was completed on schedule	.862	
PSTM5	Necessary project information is provided to	.886	

	stakeholders on time			
PSTM3	Project activities from initiation to closure are always timely	.478		
PSCO1	The actual total cost of the project was significantly under authorized budget		.607	
PSCO3	Reliable cost estimates are often set before project implementation		.580	
PSCO4	The cost objectives were met for the project		.836	
PSCO2	The final budget for each phase of the project was essentially the same as planned		.701	
PSQU1	Projects outputs have greatly improved the livelihood of many stakeholders		.803	
PSQU2	The project's deliverables complied with the set requirements		.605	
PSQU4	The project's output meets stakeholders' expectations		.513	
PSQU5	The project improved performance for stakeholders		.624	
PSQU6	Project end product is accepted and used by the stakeholders for whom the project is intended		.588	
PSQU3	The quality of the project targets achieved is always high		.403	
PSQU6	Project end product is accepted and used by the stakeholders for whom the project is intended		.098	
<i>Eigen Value</i>		3.666	1.874	1.606
<i>Variance %</i>		45.830	11.711	10.036
<i>Cumulative %</i>		45.830	57.541	67.577

Source: Researcher's own construction.