



INFLUENCE OF CONSTRUCTION PROJECT TEAM MEMBERS' TRUST ON TEAM PERFORMANCE IN HIGHER EDUCATIONAL INSTITUTION BUILDING PROJECT IN BAUCHI STATE

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Abstract

Progressively, construction practitioners are turning their attention towards managing the members within the project teams. Team members hold the key towards project success. The working relationships between key members of a project team, namely, the client, main contractor and consultants, have critical influences on projects success. Nevertheless, the temporary nature of teams that they operate within influences their trust. Despite this, efforts were limited in determining the issue relating to team trust and team performance by construction projects team. Accordingly, this research determines the influence of construction projects team trust on team performance in Bauchi state higher educational institutions. 152 questionnaires were conveniently administered to construction projects team members in seven higher educational institutions in the study area. The research found, construction projects team trust factors in order of their presence, team meeting its negotiated obligations each other's, team members keeping their word and telling the truth during negotiations as the team trust factors were moderately present in the study area. While, other team trust factors, contribution to the team, rate at which the team is reliable, rate at which honestly the team negotiates with me, rate at which the team fairly negotiates joint expectations, rate at which the team tries to get the upper hand of me, rate at which the team jointly solve individual's problems, rate at which the team tries to be committed in all dealings, rate at which the team tries to solve the problems of vulnerability, trust on teammates in making decisions for the team and team members believes of trust as an important component in team were low level present in the study area. The general team performance level of construction projects team in the study area was found to be low which is significantly influenced by the team trust factors positively. Accordingly, projects team performance can therefore be improved by improving the team trust factors. The research conducted is most beneficial for project managers and team leaders in construction organizations to adjust their focus on key components of effective trust in team that lead to augment the possibilities of team performance. This serve as a wake-up call to

stakeholders in Nigerian construction industry on the consequences of team trust for enhancing effective team performance for national economic development.

Keywords: Team, Projects Team, Team Performance, Project Team Trust

Introduction

Construction industry is now focusing more attention on continuous improvement of construction project management performance (Hassan et al., 2022; Azmy, 2012 & Ong, 2008). Conventionally attempts to improve project delivery were directed through the manipulation of the elements of time, cost or quality of projects (Ong, 2008). Increasingly, construction practitioners are turning their attention towards managing the members within the project teams (Hassan, et al. 2022). Construction project team members hold the key towards project success (Hassan, et al., 2020 Azmy, 2012 & Ong, 2008). Research on organisations and teams have emphasised that understanding the social and psychological aspects of the team members are crucial (Fong and Lung, 2007). Team members' attitudes interms of trust influence how they behave and respond. Yet, the impermanent nature of construction projects teams that they operate within influences their trust (Ong, 2008). The working relationships between key members of a project team, namely, the client, main contractor and consultants, have critical influences on team performance (Ong, 2008 & Azmy, 2012). Construction project team performance is a reliable measure to evaluates the team's output against the expected output of the projects (Alharbi, 2022). Furthermore, Hassan, et al., 2022; and Azmy, 2012 defined construction project team performance as the ability of the team members to work together in a flexible manner, helping out each other, put in effort, and functions well as a team to overcome issues and complete the project within the given timeframe, on cost target, with quality standard, health and safety free, client satisfaction and accepted by customers (Amzy, 2012 & Alharbi, 2022). However, researchers like Hassan et al. (2022), Hassan, et al. (2020), Alharbi (2022), Azmy, (2012), Oke and Ekaeke, (2013), Santosh (2016) and Kwofie et al., (2015) have reported the low and average team performance across the globe, which is severe in developing nations (including Nigeria). Resulted from project team, it is reported that over 70% of the construction projects recorded low performance (Okweto, 2012; Hassan et al., 2022). The consequences being project abandonment, decrease in building activities, loss of profit for the contractors, tarnishing the reputation of the professionals, decrease in rate of national growth, rework, frustration on stakeholders, delay, and higher price to the end user among others (Hassan et al., 2022; Hassan et al., 2020; Ikechukwu et al., 2017; Prajapati et al., 2016).

Several factors were reported by many researchers responsible for low project team performance of building construction projects. Oke and Ekaeke, (2013) and Santosh (2016) reported lack trust and avoidance of accountability are the major factors responsible for low

team performance in the construction industry. Hassan et al., 2020 reported that lack trust, commitment, healthy conflict, among others are major factors causing low team performance. Incompetence of project participants, poor relationship among project participants, poor interrelation between the employee and supervisor, incompetent supervisors, and lack of good positive attitude of employees were all reported among others major causes of low project team performance (Hassan et al., 2022; Kibuchi & Muchungu, 2012). Hence, effective construction project team trust is very critical in improving construction project's team performance.

Alharbi, (2022) and Azmy (2012) defined trust as “a psychological state, involving expectations and feelings that lead to judgements about the trustworthiness of others, and as either rational or relational choice behaviour that puts these expectations and feelings into observable action”. Essens et al. (2009) defined trust as a psychological state that shows itself in behaviours towards others and is essential for understanding interpersonal and group behaviour. The definition of trust in this research was adopted from Che Ibrahim et al. (2015) as an emotional phenomenon required to create engagement and positive contact between project teams. Researchers have identified trust between team members as a paramount factor when working in any collective unit (for example, project team) (Azmy, 2012; Alharbi, 2022). The importance of trust among team members has been considered in many studies on teams, and team effectiveness, in particular (Azmy, 2012; Che Ibrahim et al., 2015; Sumner & Slattery, 2010; Sweis et al., 2018 Hassan et al., 2020). Ceric, (2015) belief that trust among team members has important implications for team outcomes. However, Oke and Ukaeke, (2013) attributed the absence of trust to team members concealing weaknesses and mistakes, hesitate to ask for help or offer constructive criticism, hold grudges, dread meetings, not focusing on results and find reasons to avoid spending time together. Hassan et al., (2022) and Azmy (2012) attributed absence of trust to lack of open communication, team members not feeling free to express their opinions on the tasks as well as on the group's operations, lack respectful treatment to each other, lack of trust on teammates in making decisions among others. While Ong (2008) attributed to lack honesty in negotiates, team members not reliable with each other, not telling in negotiations and not keeping its word among others.

Nevertheless, the influence of project team trust on project team performance has been investigated in other climates (Azmy, 2012; Sumner and Slattery, 2010; Pinto et al., 2009; Santosh, 2016; Adams et al., 2002; Assaf. et al., 2014; Alharbi, 2022). However, (Bishop and Scott, 2000) stated that people in different team environment may exhibit different attitudes and behaviours. Rarer studies were conducted in Nigeria by (Oke and Ukaeke, 2013; Hassan et al., 2020 and Hassan et al., 2022). considerably limited studies in the Nigerian higher educational institutions on the subject matter even though a significant volume of formal public constructions are in the segment with a substantial amount of project overruns of about 100% (Mukhtar et al., 2021). current studies also were mostly descriptive without in-depth inferential testing of the causal link between project team trust and project team performance. Hackman

(1987) advocated that generalization of research in group (or team) behaviour is usually weak and they are usually dependent on the task or situational contexts. In addition, most research conducted in the context of team members' attitudes (trust) derived predominantly from experimental teams and permanent teams within a single organisation (Van Der Vegt et al., 2003). Obviously, the limited studies into these areas have not included construction project teams. Nevertheless, researchers have warned that individual differs from one another and people in different industries and organizations learn differently (Hergenhahn and Olson, 2001). The emphasis on encouraging working relationships between the project participants and the need to investigate the effects in other work environment is clear. The lack of understanding how teams' trust influences the affective responses of members in a construction project team constitutes a gap in the current construction management literature. Hence, it became necessary to determine the level of influence of teams' trust in construction projects teams on team performance of building project in order to augment the effectiveness of team performance in higher educational institution in Bauchi state for national economic development.

Literature review

Definition teams

While a common term, the concept of a "team" can mean something slightly different depending on its context; hence, it is important to define here. A team is a group of individuals who share a common purpose and a number of challenging goals (Sisson, 2013). In an organisational or project context, a team can consist of two or more individuals who interact in a professional manner, perform different roles, and demonstrate interdependencies with regard to goals and outcomes (Hensy, 2001). Chuang Yuh and Yi-Chung Hu (2018) defined a team as "a working group composed of people who can complement, rely on, and cooperate with one another to accomplish their mutual target through coordination and communication". On the other hand, the term "work group" consists of two or more individuals who perform tasks, share objectives, interact as a social unit, and exist within an organisational context (Cohen & Bailey, 1997). According to Robbins and Judge (2016), groups differ from teams in terms of the way they perform their work. A work group interacts to the extent that it helps each member to perform within the scope of their responsibilities by sharing information and making decisions. Work groups do not need to interact or be involved in collective work that demands joint effort. The performance of a work group is the sum of each member's individual contribution towards a collective goal or outcome. In contrast, team work creates a positive synergy achieved through a coordinated effort, such that the individual efforts lead to a performance that is greater than the sum of each member's input (Robbins & Judge, 2016).

Construction project teams

Construction industry is project-based, and the unique requirements of each project requires the coming together of a group of individuals with different skills, knowledge, and experience, and requires them to work with others from various organisations (Azmy, 2012). In the construction context, Heravi (2014) defined a project team as "a group of professionals from

different organisations who come together to conduct the necessary planning, design, and construction processes to implement a project”. A typical construction project team also consists of a team of individuals from diverse professional and cultural backgrounds who come from different countries, may speak a multitude of languages, and have different educational or professional backgrounds (Alhaqbani, 2013). For example, one of the most commonly cited problems in delivering high-quality projects is resistance to culture change (Wu, 2015). According to Rumane (2017), a construction project consists of three main stakeholders: the project owner, professional designer, and contractor. The owner’s role is to outline the vision and needs of the project and be responsible for all financial decision making about the project. The designer's role is to transform the owner’s project vision and needs into a visual and buildable concept of the project, and in some cases, also take on the project supervision responsibilities on behalf of the owner. The contractor's role is to build the project by providing the required employees, workers, materials, equipment, and tools to the satisfaction of the owner/end user (Rumane, 2017).

Construction project team performance

Since 1994, significant attention has been paid to performance measurement, as the construction industry has become increasingly competitive, and performance measurement has therefore become a critical factor for business continuity (Bassioni et al., 2004). In numerous countries, there are concerns about the construction industry's overall poor performance, particularly on team (Ali & Rahmat, 2010). Therefore, several countries, including Ghana, Vietnam, and Tanzania, have recognised the necessity and significance of using measures to improve their construction industries' performance and meet their developmental objectives (Ofori, 2015). Depending on several aspects, the performance of a construction team can be high or low since each project is initiated to meet specific objectives in terms of quality, cost, time, and client satisfaction (Lepartobiko, 2012). Asmah (2015) claimed that for a project team to be graded as an effective it should have met the objectives and priorities laid out in the project scope. In general, the most critical objective of every building project is that it should be completed on time, within budget, and as per quality specifications (Kissi et al., 2020).

Vleems (2018) stressed that the key performance measures are time, cost, and scope. Dainty et al. (2003) argued that project quality, cost, and time are no longer adequate when measuring performance, as there are other better ways of measuring construction performance, such as health and safety and client satisfaction. Chan and Chan (2004) investigated areas of project success in the construction context and determined that performance measurement was a complex process that should not be limited to common and objective measures, such as time, cost, and quality, and should instead be expanded to include subjective client-defined measures, such as quality and client satisfaction. Their investigation developed a set of key performance indicators that can be used to measure performance in the construction industry (see Figure 1).

Sodangi et al. (2010) found that even with the expansion into other performance measures away from quality, cost, and time, these three measures still ranked as the most significant

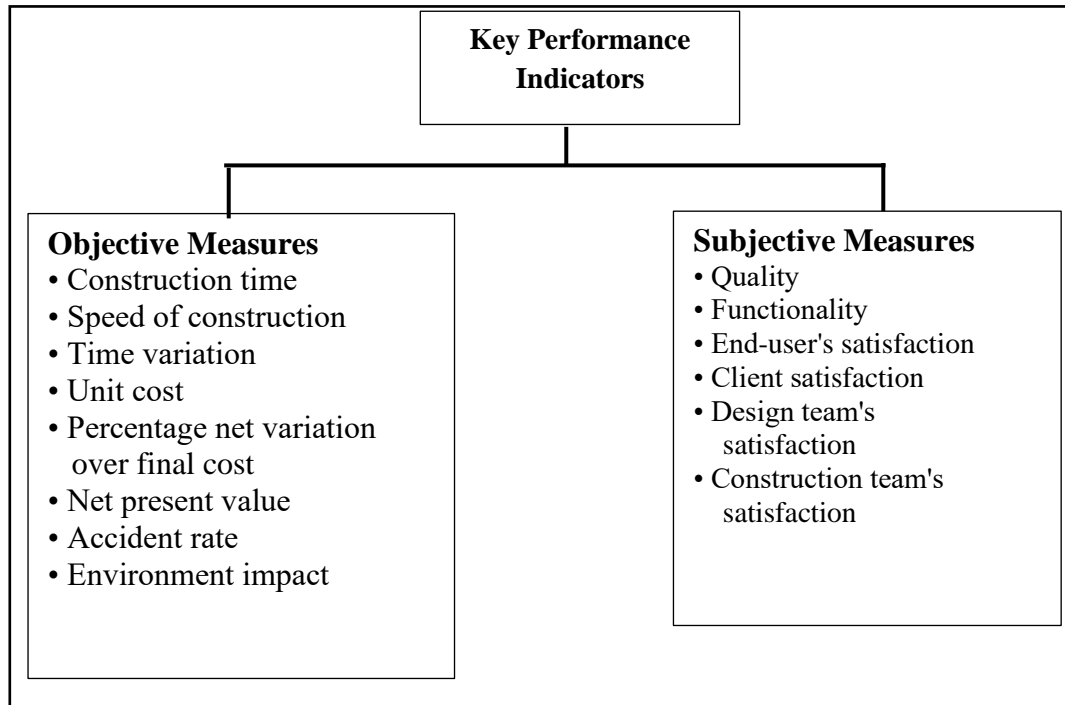


Figure 1: Key Performance Indicators from Chan and Chan (2004)

Several researchers have highlighted quality, cost, time, health and safety, and client satisfaction as the most important measures of team performance in the construction industry (Ali & Rahmat, 2010; Yun et al., 2016). Yun et al. (2016) stressed that health and safety was commonly included as a performance indicator in most studies, as accidents during the project could impact quality performance and cause project delays, financial losses, and negatively affect team moral and the team's perception of project success. According to the performance measures developed by Chan and Chan (2004), a construction project team's satisfaction is an important factor when measuring team performance. Pinto and Pinto (1991) stressed that measures for construction project success must include psychosocial and social outcomes, such as team satisfaction. Wuellner (1990) suggested the inclusion of team satisfaction as a performance indicator. According to Fung and Siow (2014), team satisfaction can enhance project performance, because when the team is satisfied and happy, they will deliver high-quality outcomes. For example, in the construction industry, satisfied team members will deliver extra work, even if it is beyond their assigned scope or limit, such as working overtime and accepting more workload (Fung & Siow, 2014). According to Seeney (2015), these measures are reflective of the way the construction industry operates and there is no need for more measures, as rather

than including new measures, companies should focus on perfecting the current measures of performance. Therefore, it can be concluded that team performance in the construction industry could be evaluated by measuring project quality, project cost, project time, health and safety, client satisfaction, and team satisfaction. These six measures of team performance are discussed in the following sub-sections.

Project quality

Achieving project quality is one of the traditional measures of team performance (Leong et al., 2014; Oke, 2017). As mentioned in this research, Quality is the degree to which a need or expectation is met (Stojcetovic, 2013). Quality is linked to team effectiveness outcomes. Poor quality performance at the project level, for example, have a negative impact on project cost and duration (Stojcetovic, 2013). Wanberg et al. (2013) emphasized that the rate of first aid quality defects is closely connected with the number of quality defects in terms of health and safety. This means that the more quality defects the more safety accidents occur. Various researchers and professionals have measured construction project quality using different methods, as shown below:

- i. Meeting specifications (Ali & Rahmat, 2010; Husain, 2016)
- ii. Total number of defects (Ogunlana, 2010; Steinman, 2017).
- iii. Cost of quality (Jafari & Rodchua, 2014).
- iv. Client satisfaction (Mane & Patil, 2015; Omonori & Lawal, 2014).
- v. Quality incidents (Dorgan, 2016).
- vi. Quality dimensions (Sodangi et al., 2010).

Measuring quality by the degree to which the specifications were met was developed to understand whether the facility was built to a good standard and using good procedures as defined by the client (Husain, 2016). According to Steinman (2017) and Ogunlana (2010), the total number of defects during construction at the project's handover can be a reliable measure of quality performance. Jafari and Rodchua (2014) used the cost of quality as a quality measurement in a construction project. They considered the costs associated with the achievement and non-achievement of quality as a quality measurement. Omonori and Lawal (2014) believed client satisfaction to be a significant factor in measuring quality. Based on the literature review, client satisfaction is a critical factor in measuring project quality performance, and quality specifications are specified by the client; therefore, project quality was measured as the extent to which the quality specifications are met.

Project cost

Project costs are commonly used to measure team performance in construction projects (Ali & Rahmat, 2010; Leong et al., 2014). A construction project team is concerned with completing

the project within the specified budget, and its ability to do so is challenged, as there are often unexpected changes and uncertainties occurring throughout the construction phase (Azmy, 2012). Project cost is not only confined to the tender sum, but also the overall cost that a project incurs from inception to completion, which includes any costs arising from variations, modifications during the construction period, and costs arising from legal claims, such as litigation and arbitration (Ali & Rahmat, 2010). Project costs should be adequately estimated and controlled, as poor cost performance has a negative influence on all project components (Abas et al., 2015). Project costs can be measured based on cost variations calculated by the variance between the actual cost and the budgeted cost of a project (Huresky, 2016; Project Management Institute, 2013; Rahman et al., 2012). Cost variance is the measure usually used for performance measurement of a project in the construction industry (Salter & Torbett, 2003). This measure is not only limited to the estimation of the tender sum, it also includes the total cost of the project from the start to completion (Leong et al., 2014). Thus, in this research, the project cost was measured as the extent to which the project was completed within the specific budget (Ali & Rahmat, 2010; Azmy, 2012; Leong et al., 2014).

Project duration

Project duration is one of the fundamental criteria in measuring team performance in the construction industry (Rahman et al., 2012). The project owner and other stakeholders often consider project duration as their first measure of project success (Leong et al., 2014). Project duration is viewed as the timeframe from the commencement of site work to the closure and delivery of the project (O'Loughlin, 2018). Project duration is described as the overall duration for completing the project at a time scheduled by the client (Hatush & Skitmore, 1997). Significant project delays often contribute to work distraction, loss of productivity, and leading to contract termination (Mushato et al., 2020). Rahmat (2010) suggested that time variance is one technique for measuring project performance at the project level. Time variance in a project can be measured by calculating the difference between the construction time and completion time (Leong et al., 2014). The project manager uses this measure to report the status of the project duration to the client or the construction company (Huresky, 2016). Therefore, project duration in this research was measured as the extent to which the project was completed on time (Ali & Rahmat, 2010; Leong et al., 2014).

Health and safety

Health and safety issues cannot be overlooked in the construction industry. According to Australia Safe Work (2015), the construction industry had the highest proportion of employees who did not return to work after suffering a workplace injury and this influenced team performance. The project team's main interest is to ensure that the construction project has zero accidents or major injuries (Azmy, 2012). Thus, health and safety are considered crucial factors

in measuring team performance (Sodangi et al., 2010). Health and safety is defined as the degree to which the general conditions promote the completion of a project without major accidents or injuries (Ali & Rahmat, 2010). Health and safety accidents on construction sites can influence the delivery of the project because they may damage construction, cause delay, or prevent workers from performing their work (Husain, 2016). The leading causes of safety incidents can be traced back to organisational factors such as top management commitment and inadequate supervision at the project level (Love et al., 2016). Health and safety is often measured using statistics of injuries that occur during the construction phase (Chan & Chan, 2004). This measurement helps the company to provide information about the status of strategies and activities employed to monitor safety risks (Ali & Rahmat, 2010). According to Azmy (2012) project health and safety can be measured by the number of accidents that occur on the project site. Health and safety is traditionally assessed by statistics on accident and fatalities (Leong et al., 2014). The General Services Administration (2014) measured the contractor's performance on health and safety in terms of the contractor's ability to establish an environment of safety, adhere to the safety plan, and comply with security requirements for the project. Health and safety in the construction industry can be measured in terms of the project team's ability to remove as many hazards as possible, create safe project practices, ensure the use of personal protective equipment, and identify health and safety risks. In this study, project health and safety was measured as the extent to which the project was completed without major accidents, injuries, and fatalities (Azmy, 2012; Leong et al., 2014).

Client satisfaction

Client satisfaction is a significant factor in developing the performance of construction projects team (Ali et al., 2013). In the construction industry, the client is the owner of the project who requires the constructed facility (Karna et al., 2004). In the construction context, contractors have transferred a significant portion of their focus to client satisfaction, as clients are the reason that the construction industry exists; hence, clients are always on the minds of the business (Omonori & Lawal, 2014). Therefore, client satisfaction is defined as the degree to which a client is happy with a product or service. Client satisfaction has been measured using different methods, with the most common measures including project cost, time and quality (Omonori & Lawal, 2014). Azmy (2012) measured client satisfaction based on the project team's performance considering the extent to which the client was satisfied with the project's outcomes (quality, cost, and duration). The literature confirms that client satisfaction depends on the extent to which project team members achieve project outcomes (Latif & Williams, 2017). In this research, client satisfaction was measured based on team members' perception of whether they met the client's expectations about the project outcomes (quality, cost, and duration).

Team satisfaction

Almost all team effectiveness studies have suggested team member satisfaction as an output factor (Guchait et al., 2016; Sweis et al., 2018). Many researchers have shed light on team

satisfaction as a psychological concept that implies an emotional attitude to work reflected in positive and happy emotions (Sypniewska, 2014). Team member satisfaction is defined as members' attitudes towards their project team and their willingness to continue working together over time (Omar & Ahmad, 2014). Gladstein (1984) measured team satisfaction using three scales: team satisfaction with being a team member, satisfaction with the work, and satisfaction in dealing with or serving the client. Guchait et al. (2016) measured team members' satisfaction by asking team members about whether their feelings about being a member was a positive experience and had been personally satisfying. Tasios and Giannouli (2017) used five factors to measure team satisfaction, including satisfaction with the job, satisfaction with their manager's behaviour, salary, satisfaction with other team members, and satisfaction with promotions. Schweitzer and Duxbury (2010) measured team satisfaction considering the extent to which individuals in the team respected each other, an individual's input was valued by the members, member morale was high in the team, and the willingness of members to work together in the future. In this research, team satisfaction was measured in terms of how satisfied the project team members were with being team members and their willingness to continue working together in the future (Schweitzer & Duxbury, 2010).

Team trust

The importance of trust among team members has been considered in many studies on teams, and team performance, in particular (Azmy, 2012; Che Ibrahim et al., 2015; Sumner & Slattery, 2010; Sweis et al., 2018). One reason for this interest is the belief that trust among team members has important implications for team outcomes. In terms of the construction industry, trust has also become an important topic in the last few decades (Ceric, 2015). Essens et al. (2009) defined trust as a psychological state that shows itself in behaviours towards others and is essential for understanding interpersonal and group behaviour. Che Ibrahim et al. (2015) defined trust as an emotional phenomenon required to create engagement and positive contact between project teams. The definition of trust in this research was adopted from Azmy (2012), as it fits within the research context, which is "a psychological state, involving expectations and feelings that lead to judgements about the trustworthiness of others, and as either rational or relational choice behaviour that puts these expectations and feelings into observable action".

Many studies have agreed that trust among team members influences team performance (Adams et al., 2002; Assaf. et al., 2014; Azmy, 2012; Sweis et al., 2018). For example, Che Ibrahim et al. (2015) found that trust ranked as the second most important indicator for team effectiveness to achieve project outcomes. Trust needs to exist among the team because it influences the team's ability to deliver high-quality projects (Gad & Shane, 2014). Ceric (2015) found that trust is one of the most effective strategies to minimise communication issues between team members, which is one of the most important common causes of conflict and problems on construction projects. In the project context, trust provides a safe space for team members to

work together and share ideas, as they can then be confident that they can depend on one another (Eskander, 2017). Azmy (2012) examined the influence of trust on construction team effectiveness and found that members were able to understand the roles and responsibilities, communicate effectively, and complete the project on time, within budget, and meet quality specifications due to the existence of mutual trust. Sumner and Slattery (2010) concluded that team satisfaction is directly influenced by trust, and a project team can easily achieve its goals when members trust each other.

Pinto et al. (2009) measured trust as the extent to which a team member trusted the other members' ability to perform productively, the extent to which a member believed that each member kept his or her word throughout the project life, and the extent to which members felt confident that integrity was present in the team. In the construction industry, Azmy (2012) measured trust among the team by asking team members about the extent to which they treated each other with respect, trusted each other, showed appreciation, and supported each other. According to Adams et al. (2002), trust can be measured by asking team members about the extent to which they trust each other. This measure was deemed suitable for the research focus because it examines trust as a broad concept among team members. The proposed measures by Azmy (2012) examine the extent to which team members support each other, which was considered in this research as a key team trust factor (social support). Therefore, trust in this research was measured as the extent to which each member of the project team trusts the other members. This measure has commonly been used to measure trust in the many team trusts studies (Assaf. et al., 2014).

Therefore, in construction project teams where members come from different organisations for a limited time, trust in the teams appears to be even unpredictable. As such, more studies are required to provide better understanding on the limitations and situations that could disrupt the trust between members of these multi-organisations.

Measures for team trust in the construction project team by various authors are presented in table 1 below.

Table 1: Measures for team trust

S/N	Team Trust Items	Authors
1	I think that the team meets its negotiated obligations to me,	Ong, 2008, Alharbi, 2022
2	I feel that the team will keep its word,	Ong, 2008, Alharbi, 2022
3	I think the people in the team tell the truth in negotiations,	Ong, 2008, Alharbi, 2022
4	I think the team does not mislead me. In my opinion, the team is reliable.	Ong, 2008, Alharbi, 2022
5	I feel that the team negotiates with me honestly.	Ong, 2008, Alharbi, 2022

6	I feel that the team negotiates joint expectations fairly.	Ong, 2008, Alharbi, 2022
7	I feel that the team tries to get the upper hand of me,	Ong, 2008, Alharbi, 2022
8	I think that the people in the team succeed by stepping on other people.	Ong, 2008, Alharbi, 2022
9	I think that the team takes advantage of my problems.	Ong, 2008, Alharbi, 2022
10	I feel that the team takes advantage of people who are vulnerable.	Ong, 2008, Alharbi, 2022
11	I feel that the team tries to get out of its commitments.	Ong, 2008, Alharbi, 2022
12	As a member of the team, I am treated with respect.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
13	Other team members are treated with respect.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
14	I trust my teammates in making decisions for the team.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
15	The team members trust each other.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
16	The team members show appreciation towards one another.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
17	The team members support each other.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
18	My contributions for the team are recognized.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
19	I believe trust is an important component in teams.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
20	The team believes trust is an important component.	Azmy, 2012; Hassan, et al., 2020; Hassan, et al., 2022;
21	Conceal weakness and mistakes	Oke and Ekaeke, 2013; Santosh, 2016;
22	Hesitate to ask for help or offer constructive criticism	Oke and Ekaeke, 2013; Santosh, 2016;
23	Hold grudges	Oke and Ekaeke, 2013; Santosh, 2016;
24	Dread meetings	Oke and Ekaeke, 2013; Santosh, 2016;

25	Find reason to avoid spending time together	Oke and Ekaeke, 2013; Santosh, 2016;
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Hence, this study adopted some items from each of the following authors: Ong, (2008); Oke and Ekaeke, (2013); Santosh, (2016); Azmy, (2012); Hassan, et al., (2020); Hassan, et al., (2022) and Alharbi, (2022).

Conceptual framework for the study

Research on organisations and teams have emphasised that understanding the social and psychological aspects of the team members are crucial (Fong and Lung, 2007). The members’ attitudes interms of trust influence how they behave and respond. The working relationships between key members of a project team, namely, the client, main contractor and consultants, have critical influences on team performance and by extension projects success (Chan et al., 2004). Nevertheless, the temporary nature of construction projects teams that they operate within influences their trust as well as interpersonal working relationships. Trust needs to exist among the team because it influences the team’s ability to deliver high-quality projects (Gad & Shane, 2014). For instance, trust facilitates the construction process, increase team effectiveness, and sustaining long-term relationships within the team (Sweis et al., 2018). Trust has been found to indirectly influence team effectiveness, conflicts resolution, and problem resolution. For example, Ceric (2015) found that trust is one of the most effective strategies to minimise communication issues between team members, which is one of the most important common causes of conflict and problems on construction projects.

Hence, based on the reviewed literature above, the conceptual research framework for this research is depicted in Figure 2. team trust is conceptualized as the independent variable. While team performance is identified as the dependent variables for this research.

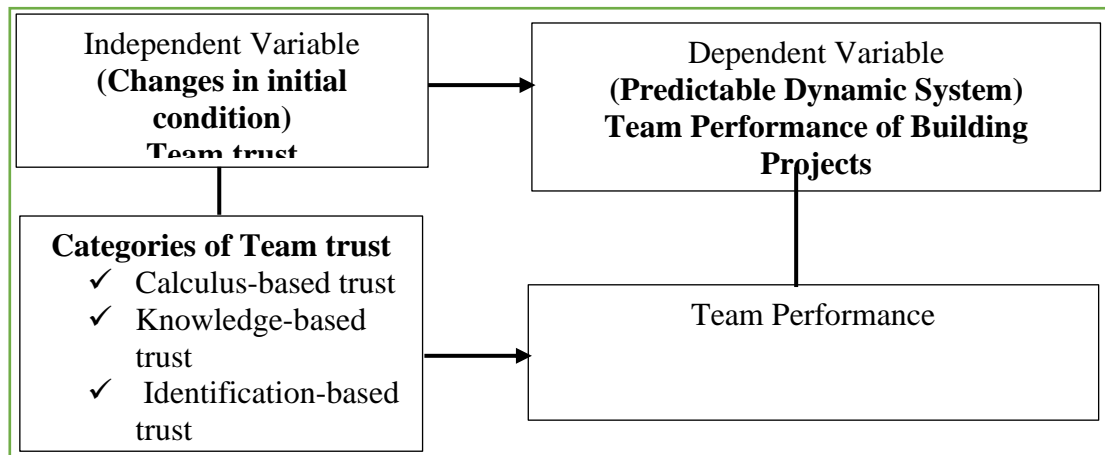


Figure 2.: Conceptual framework for the study

Methodology

Research Design

This study employed a quantitative research design: exploratory and descriptive. Exploratory design reviewed related literature to justify the existence of the problem and related research in the field of the project team trust and team performance of building projects. The descriptive design collected information regarding project team trust and team performance through a questionnaire (field survey).

Population of the Study

The target population of the study comprised of clients' team members, consultants' team members and contractors' team members (Quantity Surveyors, Architects, Builders, Civil /Structural Engineers, Electrical and Mechanical Engineers) of an ongoing project in four (7) tertiary institutions in Bauchi State (Abubakar Tafawa Balewa University Bauchi, Bauchi state University, Federal Polytechnic Bauchi, Abubakar Tatari Ali Polytechnic Bauchi, A. D Rufai College of Education, Legal and General studies, College of Education Kangare and College of Education Azare).

Sample Frame

This is the source of material from which a sample is drawn for research work. The sample frame of the study was one hundred and sixty-two (162) drawn from twenty-seven teams in the study areas. With Abubakar Tafawa Balewa University Bauchi (5 teams), Bauchi state University (4 teams), Federal Polytechnic Bauchi (4 teams), Abubakar Tatari Ali Polytechnic Bauchi (4 teams), A. D Rufai College of Education, Legal and General studies (3 teams), College of Education Kangare (3 teams), and College of Education Azare 4 teams).

Sample Size

This is an important feature of any empirical study to make inferences. It deals with the determination of the number of samples from the entire population. Towards achieving this, Krejcie and Morgan's (1970) table of sample size determination was used to determine the sample. Based on the table, the sample size was found to be one hundred and thirteen (113) for all the institutions respectively (Krejcie & Morgan, 1970).

Sampling Technique

This study employed convenient non-probabilistic sampling. Convenience sampling involving selecting sample based on convenience. This is because the respondents are easily and readily available. The technique is mostly considered because it is an easy and cheap option which provide reliable response (Ackoff, 1953). Hence, it is preferred for this study because it's easy to distribute to respondents during their site meetings when they come together weekly or monthly.

Study Area

The choice of the Bauchi state comes as a result of the numerous ongoing construction works engaged by TETFund. The state has the highest number of higher institutions enjoying TETFund interventions than any other state in the region (Ibrahim, 2017). Therefore, is considered with the highest number of essential physical infrastructure (ongoing projects) engaged by TETFund. The study was specifically carried out in seven (7) tertiary institutions in Bauchi State (Abubakar Tafawa Balewa University Bauchi, Bauchi state University, Federal Polytechnic Bauchi, Abubakar Tatari Ali Polytechnic Bauchi, A. D Rufai College of Education, Legal and General studies, College of Education Kangare and College of Education Azare). Tertiary institutions are chosen because the majority of sources of funds for their projects come from the same source (TETFund) and the kind of building structures constructed are similar and this help put them on the same platform for discussion.

Data Collection

The study used literature review, questionnaire survey and document analysis for data collection. The selections of these tools have been guided by the objectives of the study. Table 2 below presents the method of data collection in relation to each objective of the study.

Table 2. Method of data collection

Study's Objectives	Method of Data Collection
To assess the level of trust in construction project teams in Bauchi state higher educational institutions.	Literature review / Questionnaire
To assess the level of construction team performance in Bauchi state higher educational institutions.	Literature review / Questionnaire
To determine the influence of construction project team members' trust on construction project team performance in Bauchi state higher educational institution	Questionnaire

Source: Author (2023)

Survey questionnaire development

The questionnaire is structured into 3 section. Section A collects information on the respondents' demography, Section B collects information on the project team trust and section C collects information on team performance. A five-point Likert scale was used to obtain the

responses to the questionnaire using the level of agreement of the respondents. The questionnaire was designed to be completed between 10 to 15 minutes. Though Psychometric theory suggests that it is always better to use more steps (aka points) rather than fewer steps - referring to the number of scale steps used in a measure (Nunnally, 1970). Many studies have also shown that the reliability of individual rating scales increases along with the number of steps (Nunnally, 1970). The rate of increment rises rapidly at first, but about seven it tends to level off and after about eleven steps there is little gain in reliability from increasing the number of steps (Nunnally, 1970). This could explain why many attitude measures commonly used five and seven-point scale. Consequently, a 5-point Likert scale was chosen for all the survey items as it will help in achieving scale reliability and consistency. The scales express the extent of the respondent's level of agreement to a statement. The 5-point Likert scale is as follows: 5-Very High (VH); 4-High (H); 3-Average (A); 2-Low (L); 1-Very Low (VL)

Pilot study

Kotheri and Garg (2014) advised that before the final distribution of questionnaire for main data collection, it is advisable to obtain inputs from respondents for questionnaires improvement. Therefore, in this study 20 questionnaires were distributed to respondents for pilot study among which 15 were returned. The pilot survey questionnaires were subjected to three tests which include normality, reliability and validity test.

Normality test for data.

A descriptive analysis was carried out to examine normality of pilot data. Results showed that the data achieved acceptable normal distribution with skewness and kurtosis within ranges of +3 to -3 as recommended in (Kothari & Garg, 2014).

Reliability and Validity of the Research Instrument

The survey measures included in the questionnaire consist of multiple items measuring the same dimension (e.g. team trust) to ensure good reliability (De Vaus, 2002). Additionally, their internal consistency reliability and construct validity in previous studies were checked to ensure that they are inherently sound (Pallant, 2007). The questionnaire was pre-tested under field situations before it was ready for the field. The purpose of enhancing clarity is to ensure gathering of accurate information and to correct any deficiencies revealed during pre-testing exercise (Mugenda & Mugenda, 2003). Internal consistency was measured using statistical package to derive Cronbach's alpha, of 0.7 which is a coefficient that measures the consistency of results across items. The results show that reliable Cronbach's alpha of more than 0.7 was achieved in some of the constructs while other constructs need to be improved. To improve the alpha value, an items that has a low value in the "Alpha If Item Deleted" should be removed or restructured. Based on these results, adjustments of this nature can be undertaken for subsequent research.

Data Analysis

Descriptive and inferential statistics were used for analysing the data received. Descriptive statistics were used to analyse the demographic data using frequency and percentage. Descriptive analysis using mean ranking is used to determine the level of team trust and projects team performance. This was evaluated using mean score decision rule adopted from Abdullahi (2017), Hassanain and Iftikhar (2015), and Kasim et al. (2013). The deduced decision is shown in Table 3.

Table 3: Response evaluation criteria

S	CSF (Usage)	Barriers (Amount)	Implementation (Practice)	Mean Interval
1	Very low (VL)	Very little (VL)	Not practiced (NP)	1.00-1.80
2	Low (L)	Little (L)	Little Practiced (LP)	1.81-2.60
3	Average (M)	Moderate (M)	Moderately Practiced (MP)	2.61-3.40
4	High (H)	Much (M)	Often Practiced (OP)	3.41-4.20
5	Very high (VH)	Very Much (VM)	Always Practiced (AP)	4.21-5.00

Source: Kasim *et al.* (2013), Hassanain and Iftikhar (2015) and Abdullahi (2017)

Inferentially, multiple regression analysis was used to determine the influence of team trust on team performance in construction project team.

Data analysis and results

Before analysing the data collected for this research, wrong posting and missing value check, questionnaire response rate analysis, as well as reliability test, were conducted. According to Pallant (2011), it is of great importance for a researcher to ensure that the data collected are free from errors before subjecting to analysis. All values assigned for a scale were carefully checked and all wrongly posted values were corrected. The response rate for the administered questionnaire is presented in Table 4.

Table 4: Response rate

Questionnaire	Frequency	Percentage
Distributed	152	100%
Returned	141	93%
Usable/Valid	133	88%

Source: Author (2023)

Table 4 above shows the response rate for the study was 88 per cent. This response rate is considered adequate for this research based on the argument of Sekaran (2003) that a response

rate of 30 per cent is acceptable for surveys. Next, the internal consistency of the questionnaire instrument was tested using Cronbach's alpha coefficient. According to Hinton et al. (2014), the alpha score above 0.75 is generally regarded as highly reliable, from 0.50 to 0.75 is generally accepted as moderately reliable, while a score that is less than 0.50 is generally taken as a scale of low reliability. The reliability of the research variables is presented in Table 5.

Table 5: Reliability test of constructs

Constructs	No. of Items	Cronbach's alpha	Level
Team performance	20	0.87	Highly reliable
Team trust	13	0.86	Highly reliable

Source: Author (2023)

From Table 5, all the measured research constructs attained the level of high reliability with Cronbach's alpha score of more than 0.70.

Respondents' Demography

The descriptive statistics of the respondents' information are presented in Table 6.

Table 6: Respondents' profile

S/N	Respondents' Details	Response	Frequency	Percentage
1	Gender	Male	115	86.5
		Female	18	13.5
2	Team	Clients' team	30	22.6
		Consultants' team	20	15.0
		Contractors' team	77	57.9
3	Size of your team	2 - 4 People	15	11.3
		5 - 6 People	79	59.4
		7 - 10 People	35	26.3
		More than 10	4	3.0
4	Educational Background	HND	27	20.3
		Degree	29	21.8
		PGD	23	17.3
		Masters	39	29.3
		Ph.D.	15	11.3

5	Profession	Architecture	27	20.3
		Building	27	20.3
		Quantity Surveying	29	21.8
		Engineering	50	37.6
6	Years of Experience	Less than 5 years	10	7.5
		5 – 10 years	20	15.0
		11 – 15 years	43	32.3
		15 years & above	60	45.1
7	Project undertaken in the last 5years	1-10	29	21.8
		11-20	54	40.6
		Above 20	50	37.6
8	Statutory Professional Body	ARCOM	27	20.3
		CORBON	27	20.3
		QSRBN	29	21.8
		COREN	50	37.6

Source: Author (2023)

Table 6 above is the result indicated that the majority of the respondents were contractors followed by the clients who were mostly males in moderately sized firms with about 5-6 members. Most of the respondents have Master's degree with vast years of experience in the construction industry and fully registration with their professional body.

The level of team trust in Project Team in the Study Area

The level of effectiveness of the construction project team in the study area was evaluated using mean ranking as presented in Table 7 below.

Table 7: Team Trust Factors (TTF)'s rank

Team Trust	Mean	Standard Deviation	Rank	Remark
The rate at which the team meets its negotiated obligations to me.	2.92	0.396	1 st	M
The rate at which the team keep its word.	2.85	0.395	2 nd	M
The rate at which the people in the team tell the truth in negotiations.	2.80	0.386	3 rd	M

Recognition of my contributions to the team	2.40	0.385	4 th	L
The rate at which the team is reliable.	2.39	0.384	5 th	L
The rate at which honestly the team negotiates with me.	2.38	0.379	6 th	L
The rate at which the team fairly negotiates joint expectations.	2.37	0.374	7 th	L
The rate at which the team tries to get the upper hand of me.	2.37	0.373	8 th	L
The rate at which the team jointly solve individual's problems.	2.36	0.372	9 th	L
The rate at which the team tries to be committed in all dealings.	2.36	0.371	10 th	L
The rate at which the team tries to solve the problems of vulnerability.	2.35	0.360	11 th	L
The trust on teammates in making decisions for the team	2.34	0.352	12 th	L
Team members believes of trust as an important component in team.	2.20	0.340	13 th	L

Source: Author (2023)

Table 7, shows the level of team trust factors in construction project team in the study area. Rate at which the team meets its negotiated obligations to me, rate at which the team keep its word and rate at which the people in the team tell the truth in negotiations are all moderate with mean value of 2.92, 2.85 and 2.80 which are ranked 1st, 2nd and 3rd among the team trust factors in the study area. All other team trust factors in construction project team are low with mean values of ranging from 2.40 to 2.20 which are ranked from 4th to 13th respectively. Aggregately, construction project teams in Bauchi state higher educational institution have low trust towards team performance in Bauchi.

Level of Team Performance in the Study Area

Table 8: Level of project team performance

Team Trust	Mean	Standard Deviation	nth	Remark
This team has been able to achieve a good environmental standard with its work.	2.94	0.398	1 st	M

This team has been able to achieve the goals set out for the project.	2.93	0.398	2 nd	M
This team has been able to keep the safety at work to a good standard.	2.92	0.397	3 rd	M
The rate at which the overall the performance of the team has been good.	2.85	0.395	4 th	M
This team has been able to work within its budget and cost.	2.75	0.394	5 th	M
This team has been able to resolve any conflicts or problems effectively.	2.39	0.389	6 th	L
This team has been able to keep up with its scheduled work.	2.39	0.374	7 th	L
The quality of work provided by this team is improving over time.	2.38	0.373	8 th	L
The willingness of the members to continue working together in the future	2.37	0.372	9 th	L
The willingness of the owner/client to continue working together in the future projects.	2.36	0.371	10 th	L
The rate at which professionals and skilled people were hired for the project.	2.36	0.360	11 th	L
The rate at which contractor demonstrated good technical ability on the project.	2.35	0.352	12 th	L
The rate at which contract team had a friendly atmosphere	2.35	0.340	13 th	L
The rate at which project team members demonstrated expertise necessary for the project.	2.34	0.340	14 th	L
The rate at which project team communicates with the owner in an effective manner.	2.33	0.331	15 th	L
The rate at which project team responds quickly to my needs with professional service.	2.32	0.322	16 th	L
The rate at which good service of the contractor was demonstrated during the project.	2.20	0.320	17 th	L

The rate at which others interact with this team on team performance and functions.	2.19	0.320	18 th	L
The rate at which the occurrences of critical errors are minimized by the team members.	2.18	0.319	19 th	L
The level dedication for accomplishments in the team.	2.18	0.318	20 th	L

Source: Author (2023)

Table 8, shows the level of project team performance factors in construction project team in the study area. team has been able to achieve a good environmental standard with its work., team has been able to achieve the goals set out for the project, team has been able to keep the safety at work to a good standard and rate at which the overall the performance of the team has been good are all moderate with mean value of 2.94, 2.93, 2.92 and 2.85 which are ranked 1st, 2nd, 3rd and 4th among the team performance factors in the study area. All other team performance factors in construction project team are low with mean values of ranging from 2.39 to 2.18 which are ranked from 5th to 20th respectively. Thus, construction project teams in Bauchi state higher educational institution have low performance towards project performance in Bauchi state.

Influence of Team trust on team performance

Multiple Regression Analysis (MRA) was conducted to determine the influence of project team trust on team performance in the study area. Before interpreting the models, it is important to check for some assumptions for the output of multiple regression as recommended by Pallant (2011). The first assumption was the multicollinearity of the variables involved in the analysis, this is to ensure at least reasonable correlation between independent variables. The result indicated that the independent variables are reasonably related, the relationship between them was not too high, the highest correlation was 0.473 which is lower than 0.7 (Pallant, 2011). To support this, the values displayed by Tolerance and VIF also were substantial as well, with all the independent variables having 0.464 and 2.153 respectively. The tolerance levels range from 0.410 to 0.524 all above the recommended 0.1 minimum. Similarly, the VIFs range from 1.907 to 2.440 all below the recommended minimum of 10. Therefore, the study's variables pass the collinearity test and are suitable for multivariate analysis as suggested by Pallant (2011). This research checked the normality of the data distribution using skewness and kurtosis. Kothari and Garg (2014) recommended that skewness and kurtosis values of -3 to +3 are considered asymmetrical distribution which is suitable for parametric tests and presume a normal distribution. The result shows that all the variables are within the recommended range of -3 and +3 (Kothari & Garg, 2014). This indicated that there was an agreement between the

opinions of the respondents which reduced the occurrence of outliers. The regression model was specified to produce the model summary, the analysis of variance (ANOVA) and the coefficient to determine the influences of the independent variable on each of the individual dependent variables as presented in Table 9.

Table 9: Model Summary and ANOVA for team performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.767	.605	.575	.277	33.301	.000

Source: Author (2023)

Table 9 above shows the regression model summary and ANOVA result. The model produced overall R value of 0.767 and R square value of 0.605 with F-statistics of 33.301 which are significant as indicated by p value of 0.000 far below the recommended maximum of 0.05 (Pallant, 2011). This shows that the model predicts about 57.5% of the variation in team performance. In other words, about 57.5% in the changes in team performance whether high or low can be explained by changes in the construction projects team trust. The model is fitted well and good as it produced a strong R square and F statistics values.

The individual influence of each team trust factors on team performance is presented by the standardized regression coefficients in table 10 below.

Table 10: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.475	.196		2.42	.017
The rate at which the team meets its negotiated obligations to me.	.025	.038	.207	6.66	.000
The rate at which the team keep its word	.151	.040	.169	3.74	.000
The rate at which the people in the team tell the truth in negotiations	.048	.030	.063	1.58	.115
Recognition of my	.025	.037	.030	.683	.495

contributions to the team					
The rate at which the team is reliable	.023	.044	.024	3.514	.000
The rate at which honestly the team negotiates with me	-.033	.034	-.042	-.96	.336
The rate at which the team fairly negotiates joint expectations	-.004	.030	-.006	-.14	.882
The rate at which the team tries to get the upper hand of me.	.085	.022	.101	3.89	.000
The rate at which the team jointly solve individual's problems.	.395	.033	.572	11.96	.000
The rate at which the team tries to be committed in all dealings.	.177	.032	.260	5.50	.000
The rate at which the team tries to solve the problems of vulnerability.	.035	.043	.035	.821	.413
The trust on teammates in making decisions for the team	-.029	.042	-.030	-.69	.487
Team members believes of trust as an important component in team.	-.023	.038	-.023	-.61	.538

Source: Author (2023)

Table 10 shows the individual influence of the independent variables on the dependent variable. The result shows that the team trust factors with significant influence on team performance are rate at which the team meets its negotiated obligations to me, rate at which the team keep its word, rate at which the team is reliable, rate at which the team tries to get the upper hand of me, rate at which the team jointly solve individual's problems and rate at which the team tries

to be committed in all dealings as indicated by t-statistics values of 3.74, 3.51, 3.514, 3.89, 11.96 and 5.50 respectively all with p-values of 0.000. rate at which the team jointly solve individual's problems factor is the team trust factor with the highest influence on team performance as indicated by standardized beta coefficient of 0.572 followed by rate at which the team meets its negotiated obligations to me with beta value of 0.207. This is followed by rate at which the team tries to be committed in all dealings, rate at which the team tries to get the upper hand of me, rate at which the team keep its word and rate at which the team is reliable having beta values of 0.572, 0.207, 0.260, 0.101, 0.169 and 0.024 respectively. The other team trust factors do not have significant influence on team performance. rate at which the team fairly negotiates joint expectations is the team trust factors with the least influence on team performance.

Discussion

Level of Project Team Trusts

The first objective of this study was to assess the level of team trusts in the study area. The result shows that the current level of construction project team trust in Higher Educational Institution Buildings' Project in Bauchi State is low towards projects team performance with a 2.47 mean value. This finding conforms to that of Hassan et al. (2020), Hassan et al. (2022) in Nigeria. Alharbi, (2022) in the kingdom of Saudi Arabia also concurred to the study result "Low level" (39%). Contrary to this result are studies by Azmy (2012), Ong (2008), Santosh (2016) and Oke and Ukaeke (2013) in the United States, Australia, India and Nigeria respectively, found most of the team trust factors to be moderate (average/fairly).

Level of Project team Performance

The second objective of this study was to assess the level of project team performance in the study area. Analysis of responses from respondents found the level of projects team performance in the Higher Educational Institution Buildings' Project in Bauchi State is low with a mean value of 2.43. This finding is in line with Hassan et al., (2022); Hassan, et al., 2020; Alharbi, 2022; Oke and Ekaeke, 2013 and Kwofie, et al., 2015) who reported the performance of project teams to be poor, especially in developing countries. However, none of the above studies established the level of projects team performance as to whether very high, high, average, low or very low. This study used a benchmark in which project team performance was found to be low. Contrary to this finding are studies by Godfred (2015) and Azmy (2012) in Ghana and USA who found the overall team performance of the selected project to be 66.86% which is moderate (average). This is to say that poor project team performance could result in loss of profit by the project's clients as well as drastically reducing contribution to the national gross domestic product by the Nigerian construction industry.

Influence of Project Team Trust on Project Team Performance

The aim of this study was to determine the influence of construction projects team trust on project team performance in Bauchi state higher educational institutions. The results revealed an adjusted R square value of 0.575. This shows that the model predicts about 57.5 per cent of the variation in projects team performance. In other words, about 57.5 per cent of the changes in project team performance whether high or low can be explained by changes in the construction project team trust. Significant value from ANOVA was found to be $P = 0.000$ ($P < 0.05$). This finding echoes the research outcome of Azmy (2012), Ong (2008) in the United States and Australia respectively, who found team trust factors with positive, high correlation and strong effect on project team performance. On the individual influence of the independent variables on the dependent variable. The result shows that the construction project team trusts have high influence on project team performance as indicated by t-statistics values of 3.055 and p-values of 0.000 and further with the highest influence on project team performance as indicated by a standardized beta coefficient of 0.265. This direct relationship shows that improvement in team trusts factors significantly improves project team performance. The result indicated that any 1unit change in team trusts factors causes project team performance to change by 0.265 units as indicated by the standardized beta coefficient.

Conclusion

The construction industry is now focusing more attention on continuous improvement of construction project management performance. Conventionally attempts to improve project delivery were directed through the manipulation of the elements of time, cost or quality of projects. Increasingly, construction practitioners are turning their attention towards managing the members within the project teams. Construction project team members hold the key towards project success. Research on organisations and teams have emphasised that understanding the social and psychological aspects of the team members are crucial. The members' attitudes and perceptions of their team influence how they behave and respond. The working relationships between key members of a project team, namely, the client, main contractor and consultants, have critical influences on projects success. Nevertheless, the temporary nature of construction projects teams that they operate within influences their trust. Despite this, efforts were limited in determining the issue relating to team trust and team performance by construction projects team.

Accordingly, this research determines the influence of construction projects team trust on team performance in Bauchi state higher educational institutions. The research found, construction projects team trust factors in order of their presence, team meeting its negotiated obligations each other's, team members keeping their word and telling the truth during negotiations as the team trust factors were moderately present in the study area. While, other team trust factors, contribution to the team, rate at which the team is reliable, rate at which honestly the team

negotiates with me, rate at which the team fairly negotiates joint expectations, rate at which the team tries to get the upper hand of me, rate at which the team jointly solve individual's problems, rate at which the team tries to be committed in all dealings, rate at which the team tries to solve the problems of vulnerability, trust on teammates in making decisions for the team and team members believes of trust as an important component in team were low level present in the study area. The general team performance level of construction projects team in the study area was found to be low which is significantly influenced by the team trust factors positively. Accordingly, projects team performance can therefore be improved by improving the team trust factors especially on teammates in making decisions for the team and members believes of trust as an important component in team.

This research contributed to knowledge by filling the vacuum of knowledge of projects team trusts on projects team performance in Bauchi State-Nigeria. The research revealed the level of team trusts, the level of projects team performance and the effects of the former duos on the latter. These findings have practical implications to policy makers, contractors, clients, construction industry professional bodies and all projects team leader.

Recommendations

The recommendations are offered based on the findings of the research. The research found the presence of team trust factors to be low in Bauchi higher educational institutions. The research recommended the improvement of the team trusts factors by the construction projects teams. Specifically, the team trust factors with the least presence in the construction projects teams should be given much attention. These are team members' commitment, solving the problems of vulnerability in the team, teammates' making decisions for the team and members believing of trust as an important component in team. The research found the performance level of construction project team to be low towards successful project delivery. Thus, projects team performance can be improved by improving the team trust factors. Thus this research is recommending the improvement of team trust factors to achieve projects team performance. Specifically, in order to improve team performance, the most influential team trust factors on team performance, rate at which the team meets its negotiated obligations to me, rate at which the team keep its word, rate at which the team is reliable, rate at which the team tries to get the upper hand of me, rate at which the team jointly solve individual's problems and rate at which the team tries to be committed in all dealings, should be given more emphasis in improvement. Improving the influential team trust factors will significantly improve team performance.

On the other hand, the professional bodies in the construction industry should endeavour to be organizing team trust within projects' teams' symposiums and colloquiums to share knowledge and advances in working collaboratively as a team. Professional bodies in the construction industry should also ensure that their members imbibe trustworthiness working culture in their construction teams. Government and all its agencies concerned with construction activities

should ensure the enforcement of honestly team working in all construction projects. Clients, contractors and consultants should also be team conscious in terms of trusting each other and demand nothing less than 'togetherness' working from their respective teams. All stakeholders in construction projects should give priority to team trust in construction projects. More research should be conducted to investigate into the different factors that influence relationships between project team members. The research can be replicated in other countries and to draw comparisons between the findings.

References

- Abas, M., Khattak, S., Hussain, I., Maqsood, S., & Ahmad, I. (2015). Evaluation of Factors affecting the Quality of Construction Projects. *Technical Journal, University of Engineering and Technology*, 20(2), 115-120.
- Abdullahi, I. (2017). Influence of Facilities Performance on Students Satisfaction in Northern Nigerian Universities. *Unpublished PhD Dissertation*. Universiti Tun Hussein Onn Malaysia
- Ackoff, R. L. (1953). *The Design of Social Research*, Chicago, University of Chicago Press.
- Adams, S. G., Simon, L., & Ruiz, B. (2002). A pilot study of the performance of student teams in engineering education. *Age*, 7, 1.
- Alhaqbani, A. (2013). Impact of key organisational factors in facilitating TQM in a Saudi Arabian public sector organisation: An empirical study. *International Journal of Innovations in Business*, 2(8).
- Alharbi, M. A. B. (2022). Factors Influencing Project Team Effectiveness to Achieve Quality of Building Projects in The Kingdom of Saudi Arabia (Doctoral dissertation). School of Architecture and Built Environment Faculty of Engineering Queensland University of Technology
- Ali, A. S., & Rahmat, I. (2010). The performance measurement of construction projects managed by ISO-certified contractors in Malaysia. *Journal of Retail & Leisure Property*, 9(1), 25-35.
- Ali, H. A. E. M., Al-Sulaihi, I. A., & Al-Gahtani, K. S. (2013). Indicators for measuring performance of building construction companies in Kingdom of Saudi Arabia. *Journal of King Saud University-Engineering Sciences*, 25(2), 125-134.
- Asmah, A. J. (2015). Factors that lead to poor project performance: A case study of the Asutifi North District Assembly. (Doctoral dissertation).
- Assaf, S., A. Hassanain, M., & Mughal, H. (2014). Effectiveness of Project Teams and their Impact on the Performance of Saudi Construction Projects. *Research Journal of Applied Sciences, Engineering and Technology*, 7(24), 5148-5156.
- Azmy, N. (2012). The role of team effectiveness in construction project teams and project performance (Doctoral dissertation). Iowa State University, Ames, IA. Retrieved from <https://www.proquest.com/docview/1023117684?pq-origsite=gscholar&fromopenview=true>
- Bassioni, H. A., Price, A. D., & Hassan, T. M. (2004). Performance measurement in construction. *Journal of Management in Engineering*, 20(2), 42-50.
- Bishop, J.W. and Scott, K.D. (2000). An examination of organizational and team commitment in a self-directed team environment. *Journal of Applied Psychology*, 85 (3), 439-450.
- Ceric, A. (2015). Trust in construction projects: Literature analysis using keywords. *Organization, technology & management in construction: an international journal*, 7(1), 1179-1185.
- Chan, A. P., & Chan, A. P. (2004). Key performance indicators for measuring construction success. *Benchmarking: An International Journal*, 11(2), 203-221.
- Che Ibrahim, C.K. I., Costello, S. B. and Wilkinson, S. (2015). Making Sense of Team Integration Practice through the "Lived experience" of Alliance Project Teams. *Journal of Engineering Construction and Architectural Management*, 25(5): 598-622
- Chuang Yuh, S. and Yi-Chung Hu L. (2018). The Effect of Coaching and Team Effectiveness on Job Involvement for Logistics Industry Company. *Management Studies*. 6(2): 96-107
- Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23(3), 239-290.

- Dainty, A. R., Cheng, M.-I., & Moore, D. R. (2003). Redefining performance measures for construction project managers: An empirical evaluation. *Construction Management & Economics*, 21(2), 209-218.
- De Vaus, D.A. (2002). *Surveys in social research*, 5th ed. Crows Nest, NSW: Allen & Unwin.
- Dorgan, C. (2016). *The Key to Measuring Quality in Construction*. Retrieved from <http://www.constructionqualitycouncil.org/apps/search?q=Chad+Dorgan>
- Eskander, D. (2017). *Building Trust With Your Project Teams*. Retrieved from <https://project-management.com/building-trust-with-your-project-teams/>
- Essens, P., Vogelaar, A. L., Mylle, J. J., Blendell, C., Paris, C., Halpin, S. M., & Baranski, J. V. (2009). *Team effectiveness in complex settings: A framework*. Routledge.
- Fong, P.S.W. and Lung, B.W.C. (2007). Interorganizational teamwork in the construction industry. *Journal of Construction Engineering and Management*, 133 (2), 157-168.
- Fung, H. P., & Siow, H. (2014). Relationship between team satisfaction and project performance as perceived by project managers in Malaysia—A mixed methods study. Retrieved from file:///C:/Users/n10172963/Downloads/SSRNid2540012%20(1).pdf
- Gad, G. M., & Shane, J. S. (2014). *Trust in the construction industry: A literature review*. Paper presented at the Construction Research Congress 2014: Construction in a Global Network.
- Gladstein, D. L. (1984). Groups in Context: A Model of Task Group Effectiveness. *Administrative Science Quarterly*, 29(4), 499-517. doi:10.2307/2392936
- Gladstein, D. L. (1984). Groups in Context: A Model of Task Group Effectiveness. *Administrative Science Quarterly*, 29(4), 499-517. doi:10.2307/2392936
- Guchait, P., Lei, P., & Tews, M. J. (2016). Making teamwork work: Team knowledge for team effectiveness. *Journal of Psychology: Interdisciplinary and Applied*, 150(3), 300-317. doi:10.1080/00223980.2015.1024596
- Guchait, P., Lei, P., & Tews, M. J. (2016). Making teamwork work: Team knowledge for team effectiveness. *Journal of Psychology: Interdisciplinary and Applied*, 150(3), 300-317. doi:10.1080/00223980.2015.1024596
- Hackman, J.R. (1987). The design of work teams. In J.W. Lorsch (ed.), *Handbook of organizational behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Hassan B., Mukaddas M. M., Abubakar F. M. and Umar N. H (2020). Assessment of Team Effectiveness of Higher Educational Building Projects in North-Eastern Nigeria. *Journal of the Nigerian Institute of Quantity Surveyors*, 66(2), 116-915
- Hassan B., Waziri A. Y., Usman H. and Ibrahim Y. (2022). The Influence of Construction Project Team Effectiveness in Higher Institutions' Building Projects: A Case from Nigeria. *International Journal of Real Estate Studies*. 16(1), 37-50
- Hassanain M. A. & Iftikhar A. (2015) (2015). Framework model for post-occupancy evaluation of school facilities, *Structural Survey*, 33(4/5), 322-336, <https://doi.org/10.1108/SS-06-2015-0029>
- Hatush, Z., & Skitmore, M. (1997). Evaluating contractor prequalification data: selection criteria and project success factors. *Construction Management and Economics*, 15(2), 129-147.
- Hensy, M. (2001). *Collective excellence: Building effective teams*. American Society of Civil Engineers.
- Heravi, A. (2014). *Improving construction management: an investigation into the influences of effective stakeholder involvement on project quality outcomes*. Queensland University of Technology.
- Hergenhahn, B.R. and Olson, M.H. (2001). *An introduction to theories of learning*, 6th ed. New Jersey, USA: Prentice-Hall Inc.
- Hinton, P. R., McMurray, I., & Brownlow, C. (2014). *SPSS Explained* (2nd ed.). London: Routledge: Taylor & Francis Group. <https://doi.org/10.1007/s13398-014-0173-7.2>
- Huresky, W. (2016). *Determining project cost performance*. Retrieved from <http://www.definedlogic.com/thoughts/determining-project-cost-performance>
- Husain, S. (2016). KPIs in Construction Project Management. *Project Management in Construction*.
- Ibrahim, C. K. I. C., Costello, S. B., & Wilkinson, S. (2015). Key indicators influencing the management of team integration in construction projects. *International Journal of Managing Projects in Business*, 8(2), 300-323. doi:10.1108/IJMPB-04-2014-0028
- Ikechukwu, A. C., Emoh, Fidelis, I., & Kelvin, O. A. (2017). Causes and Effects of Cost Overruns in Public Building Construction Projects Delivery, In Imo State, Nigeria. *IOSR Journal of Business and Management*,

- 19(7), 13–20. <https://doi.org/10.9790/487X-1907021320>
- Jafari, A., & Rodchua, S. (2014). Survey research on quality costs and problems in the construction environment. *Total Quality Management & Business Excellence*, 25(3-4), 222-234.
- Karna, S., Junnonen, J.-M., & Kankainen, J. (2004). Customer satisfaction in construction. Paper presented at the Proceedings of the 12th Annual Conference on Lean Construction.
- Kasim, R., Ishiyaku, B., Harir, A. I. & Usman, H. (2013). Performance Evaluation of Tangible and Intangible Environmental Factors for Sustainable Housing Development in Developing Countries. Proceedings of international conference: “Sustainable Development Conference 2013”. Serbia: Tomorrow People Organisation. Pp. 185-196
- Kibuchi, N. & Muchungu, P. (2012). The Contribution of Human Factors in the Performance of Construction Projects in Kenya: a case study of construction project team participants in Nairobi. Retrieved July 3, 2018, from <http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/695123>.
- Kissi, E., Agyekum, K., Adjei-Kumi, T., Caleb, D., & Micheal, E. D. (2020). Exploring the influence of religious elements on performance factors in developing countries: a case of the Ghanaian construction industry. *International Journal of Productivity and Performance Management*.
- Kothari, C. R., & Garg, G (2014). *Research Methodology: Methods and Techniques* (3rd ed.). New Delhi: New Age International
- Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Education and Psychological Measurement*, 30, 607– 610. <https://doi.org/10.1177/001316447003000308>
- Kwofie, T.E., Fugar F. & Adinyira E. (2015). Identifying the Communication Competency Behaviors of Mass Housing Project Teams in Developing Countries: An Exploratory Study. *Covenant Journal of Research in the Built Environment*, 3(1), 22-42
- Latif, K. F., & Williams, N. (2017). Team effectiveness in Non-Governmental Organizations (NGOs) projects. *Evaluation and Program Planning*, 64, 20-32. doi: 10.1016/j.evalprogplan.2017.05.004
- Leong, T. K., Zakuan, N., Mat Saman, M. Z., Ariff, M., Md, S., & Tan, C. S. (2014). Using project performance to measure effectiveness of quality management system maintenance and practices in construction industry. *The Scientific World Journal*, 2014.
- Lepartobiko, W. (2012). Factors that Influence Success in Large Construction Projects: the case of Kenya Urban Roads Authority projects. *Msc Thesis*, Retrieved July 3, 2018 from 26. <http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/813327>.
- Mane, P., & Patil, J. (2015). Quality Management System at Construction Project: A Questionnaire Survey. *Int. Journal of Engineering Research and Applications*, 5(3), 126-130.
- Mushato, W., Mashwama, N. x., Thwala, D., & Aigbavboa, C. (2020). The Effects of Poor Performance on Roads Infrastructure Project.
- Nunnally, J.C. Jr. (1970). *Introduction to psychological measurement*. USA: McGraw-Hill, Inc.
- Ofori, G. (2015). Nature of the construction industry, its needs and its development: A review of four decades of research. *Journal of Construction in Developing Countries*, 20(2), 115.
- Ogunlana, S. O. (2010). Beyond the ‘iron triangle’: Stakeholder perception of key performance indicators (KPIs) for large-scale public sector development projects. *International Journal of Project Management*, 28(3), 228-236.
- Oke, A. A., Clinton & Dlamini, Ernest. (2017). Factors Affecting Quality of Construction Projects in Swaziland. In *The Ninth International Conference on Construction in the 21st Century (CITC-9) “Revolutionizing the Architecture, Engineering and Construction Industry through Leadership, Collaboration and Technology”* (Dubai, United Arab Emirates, March 5th-7th 2017).
- Oke, A. E & Ekaeke, I. L. (2013). Factors Responsible for Effective and Ineffective Teams in Nigerian Construction Industry. *Journal of Construction Management*, 551011 (4), 0970-3675
- O'Loughlin, E. (2018). Project Success Metrics: Keeping Projects on Time & on Budget. Retrieved from <https://blog.capterra.com/criteria-for-measuring-projectsuccess/#2>
- Omar, Z., & Ahmad, A. (2014). Factors contributing to research team effectiveness: Testing a model of team effectiveness in an academic setting. *International Journal of Higher Education*, 3(3), 10.
- Omonori, A., & Lawal, A. (2014). Understanding customers’ satisfaction in construction industry in Nigeria. *Journal of Economics and Sustainable Development*, 5(25), 115-120.

- Ong E. M. S. (2008). Trust, Commitment, Satisfaction and Learning in Construction Project Teams (Doctoral dissertation). The University of New South Wales Sydney, Australia
- Pallant, J. (2011). *SPSS Survival Manual* (4th ed.). Crows Nest, Australia: Allen & Unwin.
- Pinto, J. K., Slevin, D. P., & English, B. (2009). Trust in projects: An empirical assessment of owner/contractor relationships. *International Journal of Project Management*, 27(6), 638-648.
- Prajapati, S. K., Gupta, R., & Pandey, M. (2016). Causes and Effects of Cost Overrun On Construction Projects in Madhya Pradesh. *International Journal of Engineering Development and Research*, 4(2), 2321-9939. [https://doi.org/10.1016/S1474-4422\(08\)70103-0](https://doi.org/10.1016/S1474-4422(08)70103-0)
- Robbins, S. P., & Judge, T. A. (2016). Organizational Behavior. Retrieved from file:///C:/Users/n10172963/Downloads/organizational-behavior-15e-stephen-probbins-timothy-a-judge-pdf-qwerty%20(1).pdf
- Rumane, A. R. (2017). *Quality Management in Construction Projects*, Second Edition. Portland, UNITED STATES: CRC Press.
- Safe Work Australia. (2015). *Work Health & Safety Perceptions: Construction Industry*. Safe Work Australia: Canberra, Australia.
- Salter, A., & Torbett, R. (2003). Innovation and performance in engineering design. *Construction Management and Economics*, 21(6), 573-580.
- Santosh, G. K. (2016). Factor Responsible for Effective and Ineffective Team in Construction Projects. *International Journal of Engineering and Science*, 5(12), 88-93
- Schweitzer, L., & Duxbury, L. (2010). Conceptualizing and measuring the virtuality of teams. *Information Systems Journal*, 20(3), 267-295.
- Seeney, L. (2015). Project performance measures for civil construction projects associated with different procurement strategies. Retrieved from https://eprints.usq.edu.au/29173/1/Seeney_L_Tilley.pdf
- Sekaran U. (2003). *Research Methods for Business: A skill-building Approach* fourth edition. John Wiley & Sons, Inc. United States of America
- Sisson, J. (2013). The difference between a group and a team. Retrieved from <https://www.bizjournals.com/bizjournals/how-to/growth-strategies/2013/06/thedifference-between-a-group-and-a.html>
- Sodangi, M., Idrus, A., & Khamidi, M. F. (2010). Measuring quality performance in construction. Retrieved from https://www.researchgate.net/profile/Dr-MohdFarisKhamidi/publication/267232541_Measuring_Quality_Performance_in_Construction/links/54a4c7710cf256bf8bb32834/Measuring-Quality-Performance-inConstruction.pdf
- Steinman, J. (2017). Defining and measuring project quality. Retrieved from <https://www.controleng.com>
- Stojcetovic, B. (2013). Project management: Cost, time and quality. Paper presented at the International quality conference.
- Sumner, M., & Slattery, D. (2010). The impact of leadership effectiveness and team processes on team performance in construction. *International Journal of Construction Education and Research*, 6(3), 179-201. doi:10.1080/15578771.2010.507720
- Sumner, M., & Slattery, D. (2010). The impact of leadership effectiveness and team processes on team performance in construction. *International Journal of Construction Education and Research*, 6(3), 179-201. doi:10.1080/15578771.2010.507720
- Sweis, R. J., Al Sharef, R., Jandali, D., Obeidat, B. Y., & Andrawes, N. (2018). The relationship between project team members' effectiveness and acknowledgment of talent: Team members' perspective. *International Journal of Construction Education and Research*, 14(2), 141-160. doi:10.1080/15578771.2017.1356401
- Sweis, R. J., Al Sharef, R., Jandali, D., Obeidat, B. Y., & Andrawes, N. (2018). The relationship between project team members' effectiveness and acknowledgment of talent: Team members' perspective. *International Journal of Construction Education and Research*, 14(2), 141-160. doi:10.1080/15578771.2017.1356401
- Sypniewska, B. (2014). Evaluation of factors influencing job satisfaction. *Contemporary Economics*, 8(1), 57-72.
- Tasios, T., & Giannouli, V. (2017). Job Descriptive Index (JDI): Reliability and validity study in Greece. *Archives of Assessment Psychology*, 7(1), 61-91.
- Van Der Vegt, G.S., Van De Vliert, E., and Oosterhof, A. (2003). Informational dissimilarity and organizational citizenship behavior: The role of intrateam interdependence and team identification. *Academy of Management Journal*, 46 (6), 715-727.

- Wanberg, J., Harper, C., Hallowell, M. R., & Rajendran, S. (2013). Relationship between construction safety and quality performance. *Journal of Construction Engineering and Management*, 139 (10), 04013003.
- Wu, S. J. (2015). The impact of quality culture on quality management practices and performance in Chinese manufacturing firms. *International Journal of Quality & Reliability Management*, 32(8), 799-814.
- Wuellner, W. W. (1990). Project performance evaluation checklist for consulting engineers. *Journal of Management in Engineering*, 6(3), 270-281.
- Yun, S., Choi, J., de Oliveira, D. P., & Mulva, S. P. (2016). Development of performance metrics for phase-based capital project benchmarking. *International Journal of Project Management*, 34(3), 389-402.