



Dispute resolution methods adopted by contractors during COVID-19 in Eastern Cape South Africa: A Case Study

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Abstract

Over the past months, the socioeconomic consequences of the ravaging COVID-19 pandemic reverberated through and affected all segments of life. The construction industry is not left out. The severe impacts of COVID-19 have not only witnessed tragic human losses but have also caused colossal devastating implications for construction procurement and general contract condition. The study examined the dispute resolution methods adopted by contractors in Eastern Cape, South Africa, during the COVID-19 experience to determine their appropriateness and effectiveness. The study employed a snowballing, purposive, non-probability sampling technique with a mixed research design driven by respondents' participatory action. Twelve senior personnel were interviewed, while questionnaires were administered to 30 referred employees on the sites. XLSTAT statistical software and thematic analysis were used for the aggregated questionnaire and qualitative respondents' interviews in drawing inferences. The results revealed that an interest-based rather than a right-based approach are two sides of a coin that can make or mar the wheel of progress in arriving at an amicable agreement to contract terms in construction. The need for re-negotiation in billing, which is at variance with the various construction claim, cannot be over-emphasised. At the same time, the intuitive assertions of negotiation, mediation, and conciliation were used in resolving unforeseen delays, claims, and added costs due to disruptions of COVID-19. The study's main contribution lies in mastering and deploying appropriate dispute resolution methods in project execution. The study is of utmost importance in planning, restoring, and deriving optimal societal benefit from conflict management amidst the adverse effect of Covid -19 on any construction project.

Keywords: Conciliation, Construction dispute, COVID-19; mediation, negotiation

1. Introduction

Several countries have slowly started to emerge from one of the most severe lockdowns in the world due to COVID-19, which might not go away too soon. The South African construction industry is one of the industries that was severely affected not only by the national lockdown but also by unforeseen circumstances on construction sites ranging from late material delivery, difficulty in work implementation, and project time completion elongation to sudden retrenchment of the casual construction workers who sourced their livelihood from the sectorial activities. Experts have said South Africa is likely to witness still the 5th wave of infections going by the records of the fully vaccinated people at 30,559,431 out of the estimated mid-year population of 60.14 million

people (Stats SA, 2021). The newly reported cases of 1,094 infections as of Monday 14 February 2022, brought the total reported cases to 3,642,905 of death toll increased to 97,250 (+257) with a recovery rate of 96.3% for a balance of 37,406 active cases in circulation (SA-Official COVID-19 portal). Both the past occurrence and the new Covid -19 variants seem like a mirage to some industries to abide by the five-level COVID-19 alert system introduced to manage the gradual easing of the restrictions. The stringent regulations include remote working, reduced commuting, and observed social distancing as part of measures to curb the spread of the disease (Bodenstein et al., 2020). These measures have drastically transformed many industries and business

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working landscapes to adapt to new measures. For the construction industry, this presents a plethora of opportunities and challenges in alternative dispute resolution for the client and the construction team in reaching an amicable compromise middle position.

Critical infrastructure, such as bridges, ports, rail, and roads, are key competitive economic development of a nation. Many researchers have asserted that infrastructure development can create new employment opportunities both directly and indirectly, attracting investment. It provides the necessary stimulus for economic growth (Agénor and Moreno-Dodson, 2006; Bhattacharya et al. 2015; Yu, 2017). However, the impaired irregularity arising from the unforeseen COVID-19 pandemic has caused conflict and disparity between the initial guidelines for the project completion timeline and the client's assumed contractual sum (Johnson and Babu, 2020). Other contending issues are payment modality, work quality assurance, material delivery to the site, and workers' safety during the pandemic (Alsharif et al. 2021). These emerging issues affect the client who had budgeted a contractual sum for the completion of the project and the contractors who could result from working quality compromise in standards and poor-quality infrastructure delivered in other to maximise gain. These circumstances posed risks and justified deviation from the basic rule in theoretical conciliation and expert assessment in bringing amicable resolution. This brings the need for arbitrators to mediate and decide on different cost awards, which the Movement Control Order (MCO) has brought to the varying construction site works.

Moreso, in this era of different driven political interests in South Africa, where the government representative agent proclaimed additional unauthorised jobs, deviation from contracts award sum as jointly agreed with the contractors' legal officer, chief executive officer, and financial representative of the government in determining the overall project cost. Most contractors are suspicious of carrying out additional work, even if necessary. Thus, there must be a revised procedure step in authorisation before contractors can claim variation in the total contractual sum with the application of the relevant contractual clause. COVID-19 has exposed the inadequacy of the established norms in project execution.

COVID-19 may have affected many projects; however, one primary process the pandemic may have unveiled to the universe is the similarity increase in the amount of time construction professionals spend handling disputes. The global construction sector has found over 40% of professionals reporting disputes since the onset of the COVID-19 crisis (King et al. 2021; Ogunnusi et al., 2021). Construction conflicts and delays have had a wide range of effects on global productivity (Johnson and Babu, 2020). Among its leading impacts are: - overrunning costs, extensions in stalling time, delays in the delivery of projects, and a potential loss of business viability (Salami et al. 2021). Although several construction projects have come under severe threat within a short period of the lockdown, many are still basking in the euphoria of recovery from the outbreak. Also, every project has its desired outcome and subsequent challenges the pandemic has brought into the construction industry where ongoing construction site

works are at variance to the different degrees and stages of work (Alfadil et al. 2022; Harris and Moss, 2020). It is noteworthy to assess the impacts of the COVID-19 lockdown, and gradual easing on construction sites vis a vis due to unforeseen delays, the need for additional claims, and added incurred costs as postmortem derivative of COVID-19 hazard.

Among the arising argument is the work quality assurance, material delivery to site, time to project completion, need for additional claims, and additional elongated work, to who bears the cost/risk. Other emerging issues for further discussion and re-negotiation include logistics for workers' safety under the pandemic without jeopardising the standard quality of work requirement.

The recourse to no casualty and enforcing the "force majeure" in risk claims has not helped resolve the other emanating disputes (Lai, 2020). Project managers' daily tasks include leading project-related decisions and actions. A manager's actions and inactions have a direct impact on projects. One of the difficulties that a Project Manager mainly faces is decision-making. Some decisions may seem trivial, but they can determine a project's success or failure. The devotion of the project team is one of the decisive elements in project success or failure. Lack of teamwork and project members' dedication can cause problems. A project can be lost due to poor project team selection and a lack of desire among the team members. In this regard, a project manager should learn how to use the social exchange, motivation, and equity theories to boost productivity in common decision-making issues on construction sites (Lukman et al. 2022). Thus, the conception, design, and implementation of contractors' action for identifying both protective and risk factors affecting project execution in an unforeseen natural setting and the client's understanding of contractors' exposure to danger relates to timely project completion and how these affect cost incident rates signpost the contribution of this manuscript.

This study aims to appraise the extent to which the various dispute resolution methods contractors adopted during COVID -19 experience in a South African construction site. It sheds more light on contract budget optimisation, which advanced misconception concerning force majeure or frustration as a dispute resolution cluster term for settling and managing disputes amid the COVID -19 Era. Furthermore, the study emphasises the role of participatory action research (PAR) philosophy that "individuals are more motivated when involved in the decision-making process about their workplace" (Whitehead and McNiff, 2006). Six (6) Contractors and the Employer (Government of South Africa) were used in this study, supported by Tellis (1997). Tellis argued that using multiple case studies allows an in-depth exploration of cases within identified cases. Also, Baxter and Jack (2008) posit that this approach enables a researcher to forecast similar outcomes between cases and could also predict different outcomes based on a theory.

2. Theoretical background and Related work

A background review of related work shows that the COVID-19 pandemic has been explored from the

perspectives of epidemiology, infectionology, immunology, and virology (Chan et al. 2005; Ruiz Estrada et al. 2019; Harris and Moss, 2020; Diallo and Bordea, 2021)). Epidemics and pandemics are, at the same time, the factors affecting individuals but the social relationships among them, the societies, and organisational structure. The emergence of the COVID-19 pandemic outbreak has unveiled a new dimension in society. It continues to put the construction industry into socioeconomic, technical, and legal systems consideration at an unprecedented dispute rate (Ivanov, 2021; Alfadil et al., 2022). Even though dispute resolution may not be uncommon across the construction industry, the astounding increase during the COVID-19 pandemic is a cause for concern (Alsharif et al. 2021).

In addition, the measure is taken to contain the viruses such as quarantine, self-isolation, and restrictions on human and vehicular movements have a far-reaching effect on the ability of contractors to finish the project on time and within budget (Alsharif et al. 2021). In addition, a measure taken to contain the viruses, such as quarantine, self-isolation, and restrictions on human and vehicular movements, have a far-reaching effect on the ability of contractors to finish the project on time and within budget (Alsharif et al. 2021).

Maiketso and Maritz (2012) have postulated adjudication as the most popular alternative dispute resolution method in the South African and global construction industries (;Van der Merwe, 2010; Bvumbwe and Thwala, 2011; Alfadil et al., 2022). However, Povey et al. (2005) and Brett (2007) argued negotiation is the cheapest and most effective way to resolve disputes on sites. This method engages worried parties and often promotes meaningful dialogue engagement. However, some have reasoned about its effectiveness in dispute resolution in the construction industry based on the circumstances and peculiarity of the project (Baffour-Awuah et al. 2011; Abeynayake, 2015; Mazani et al. 2019; Ogunnusi et al. 2021; King et al. 2021). Adopting any particular method could be tasking and demanding in a completely new environment like COVID-19 in delivering resilient infrastructure while boosting the industry growth process.

Having raised some of the above critiques, there seems to be no specific or exclusive best method for resolving disputes on construction sites; instead, there are various ways to resolve disputes in the construction industry. Thus, there is a need to appraise the extent to which the contractors could adopt the different dispute resolution methods during COVID -19 experience.

Most of the research efforts on dispute resolution over the past decade have been aimed at improving public discourse on conflict management; for example, Yussof et al. (2020), Butteriss et al. (2001), Harrison and Wendorf Muhamad (2018), and Hodgson et al. (2018). Most of these studies simulate the impacts of a deliberate breach of contract and arouse public interest in shoddy substantial services delivery work. However, the recent COVID -19 outbreak has stripped the construction industry of service delivery-in, paying greater interest to technical details, especially in underground infrastructure, which had stripped the embedded structure of the required maintenance.

Emerging research suggests that negotiators with a primarily cooperative style are more successful than hard bargainers at reaching novel solutions that improve everyone's outcomes (Caputo, 2016; Low, 2020; Harrison and Wendorf Muhamad, 2018; Iyiola and Rjoub, 2020). Most of the studies on conflict management had addressed dispute resolution based on the precautionary principle and segmented phased practice, not stating the roles, rights, obligations, and remedies for the Employer, Contractor, and Subcontractor amidst conflicting disagreement during the COVID-19 pandemic. Furthermore, the absence of research on the lack of social cohesion (virtual meetings, online interactions) impacts the construction industry towards impacting the teamwork spirit required for the timely completion of a project call for action and practical demonstration of real work required by experts toward prompt defect correction under unforeseen circumstances. Thus, dispute resolution mechanisms are intended as suitors in small or large works either of short or long duration to resolve conflicts, more especially on components of costs (Barsky, 2016).

Looking at rules for the conduct of arbitrations (the Arbitration Act 42 of 1965), justice, fairness, and equity are tri-part pillars upon which social exchange theory in dispute resolution mechanism is based (Cortez and Johnston, 2020; Etim and Okudero, 2019). Social exchange theory presents two yardsticks of comparison. The theory underpins the case study approach adopted in assessing a given outcome, whether in a difficult situation or under normal circumstances. This scenario is also known as game theory. Game theory entails the intersection of mutual knowledge through willingness, learning, and autonomous collaboration of the people as the engine of problem-solving in an organisation (Zomrodian et al. 2017). The game theory conceptualisation in dispute resolution has helped make negotiations more structured by bringing both parties on the same page (Beltran, 2020). Therefore, to understand the application of justice in an unforeseen circumstance like COVID-19, it is imperative to dissect and conceptualise the social exchange theory in link with the equity theory (Bayat et al. 2019). A negotiator's adaption of these concepts brings clarity to the entire process. It ensures the political will of all parties to enforce the agreed terms while still preserving their respective interests (Beltran, 2020). It provides a rationale for achieving both the physical and economic robustness required for development in a goal-oriented industry (Bayat et al. 2019). Many dispute-resolution mechanisms among dissatisfied experts in project management require the game theory concept of giving and taking (Liu et al. 2017). The individual's compromise in dispute resolution depends on their expectation which is determined by the prior experience of past events. Although, the worried parties believe that the fairness of the negotiators determines the outcome of the service recovery initiative (Jeong et al. 2019; De Filippi et al. 2020).

Thus, this study highlights major dispute resolution strategies useful for COVID-19 pandemic-affected projects in Eastern Cape, South Africa, to determine their appropriateness and effectiveness. The six selected construction sites shed more light and advanced misconceptions concerning force majeure or frustration as

a dispute resolution cluster term for settling and managing disputes amid the Covid -19 Era. The study appraised the various dispute resolution mechanisms and determined their appropriateness and effectiveness using deductive reasoning in project management to mitigate unforeseen delays, disruptions, and unnecessary additional costs.

3. Research Methods

The research adopted the snowball sampling method. It is often relevant when participants of a study are difficult to locate, or constrained by time, cost, or convenience of collecting the data (Emerson, 2015). In the sampling method, a researcher collects data from a few people (participants) whom they can find, then ask the same people (participants) to recommend where potential participants may be found or people to whom such participants relate (Mitchell and Education, 2018; Sharma, 2017). The nature of this research, which requires the insights of experts from the construction industry and pandemic scientists who are well-grounded in assessing impacts on construction sites, would give credence to the subject matter. Also, in action research, the research is conducted with the intent to improve researchers' practice and design a practicable line of action; while implementing this design (Ngwenya, 2018). Hence, action research is a societal process that interrogates the nexus between people and their immediate society. It recognises the significance of perceiving society as a unit of identification (Ngwenya, 2018). Adopting the mixed design gives credence to the approach employed, whereby qualitative and quantitative methods were utilised to gather relevant data (Little et al., 2011, Onwuegbuzie et al., 2009).

The online structured interviews were conducted with senior personnel via zoom scheduled meetings for the selected company representatives. This was followed up with a recorded telephone interview. Before this, the researcher obtained permission to record and transcribe the interview sessions. Twelve senior personnel were interviewed, while questionnaires were administered to 30 referred employees on the sites in drawing inferences. The engagement of these stakeholders helps give an in-depth understanding of maneuvering COVID-19 impacts on construction cost, quality, and time to projection completion.

Quantitative data consists of numerical data, which can be quantified, while qualitative data help affirm and clarify the quantitative collected data. The triangulation method was used to justify the acceptable opinion where the qualitative and quantitative responses are in opposing positions. The triangulation technique uses multiple data collection methods to increase the observation's reliability (Tellis, 1997; Bush, 2012). This was used due to some findings that require the personal assessment of the information collected from respondents. Also, it offers sufficient statistical indices for the reliability and validity of the data collected. The research used the questionnaire distributed and the interview schedule to test the hypothesis that sought to affirm/negate the assertion that COVID-19 impacts the overall cost and time to project completion, irrespective of the lockdown stages.

3.1 Sampling Design and Procedure

To guide the inquiry into the impact of COVID-19 on a construction site, the design of the interview and the questionnaire was done in such a way that it elucidates useful information from respondents. It has six basic information headings: demographic information, the initial and aftermost COVID -19 impact on the cost; time variation responses to project completion, which dispute resolution mechanism they are aware of, and which one they believe ameliorated the arising conflict best while stating other advert effects for unforeseen circumstances. Furthermore, the validity of the research instrument was underpinned by ensuring that the questions posed were not at variance with the study's aim and objectives.

The content of the questionnaire instrument used was structured in the modified Likert fashion on a 5-point scale ranging from Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), to Strongly Disagree (SD). Participants were then instructed to respond to their degree of agreement with the statements contained in the instrument. These questions were sufficient in confirming the respondent's response to the interview conducted. Furthermore, all forms of ambiguity were avoided while explaining the aim of the research to the selected stakeholders. To communicate effectively, the researcher tried to explain in English to senior personnel, who later referred the researcher to other community members after assisting by translating it into IsiXhosa, which was the mother tongue of this locality. Such translation into IsiXhosa increased their level of comprehension of the project and helped maintain the researcher's aim.

Based on Mason (2017), Building Information Modelling (BIM) has enabled architecture, engineering, and construction professionals to improve collaboration, reduce errors and ultimately deliver better projects. It has justified added benefits for infrastructure projects and opened new opportunities for construction engineering professionals. However, the Movement Control Order (MCO) has imposed restrictions on humans and the delivery of goods to the construction site.

This had hindered mutual joint construction professionals' assessment and input to quality delivery of the projects. Thus, the research design adopted a snowball sampling approach where relevant stakeholders and experts in project management and the construction industry were consulted. The contacted individuals were briefed about the process and likely questions before the commencement of the interview. Also, permission was sought by the researcher to audio-record and transcribe the interview sessions conducted. The action-based philosophy was employed in the selection of the construction sites' participants. This enables a more precise and accurate analysis of a community's reality. The triangulation method was used to validate the hypothesis from the qualitative and quantitative research strands.

Using the Chinyio and Olomolaiye (2009) influence grid model as depicted in Figure 1, the research design process considered the participating company representatives and the government negotiating stakeholders in examining the choice and role of selected stakeholders determining the relevant dispute resolution

mechanism, types, and range in examining the different cases in question. The involvement of stakeholders chosen enables an easy-to-follow procedural step based on Pryor's (2015) criteria where the current knowledge of trends in dispute resolution, the different types, and the

range was employed to examine the different cases in question-based in Table 1 stakeholder engagement (inform, consult involve and empower) to systematic name potential stakeholders who were to be involved in the project.

Table 1: Stakeholder engagement

	Inform	Consult	Involve	Empower
Project participation goal	To provide balanced and objective information to assist stakeholders in understanding the project's drivers, alternatives, opportunities, solutions, and progress.	To obtain stakeholder feedback on issues, analysis, alternatives, and/or decisions.	Work directly with stakeholders throughout the process to ensure that their concerns and aspirations are consistently understood and considered.	To place final decision-making in the hands of stakeholders
Promise to project stakeholders	We will keep you informed about the project's progress.	We will keep you informed, listen to and acknowledge your concerns, and provide feedback on how your input influenced the decision.	We will work with you to ensure that your issues and ideas are directly reflected in the alternatives developed. We'll also provide feedback on how your input influenced the decision.	We will implement what you decide.
Example techniques for engagement and consultation	Newsletters/email, intranet, presentations	Focus groups, surveys, online forums	Workshops, polls, email feedback, document sharing	Project papers, steering group meetings, formal approvals

Source: International Association for Public Participation (2014)

The names of potential stakeholders were written out for each category identified above. The comprehensive list is comprised of these categories: beneficiaries, municipality employees, members of the ruling party, engineers, artisans, and health professionals. A representative was chosen for each category as a potential head who was served the questionnaire and later called for confirmation. A review followed this to ensure no potential stakeholder has been omitted from the list.

The engagement of these stakeholders and site managers was used to explore how the national lockdown and its aftermath impacted the construction site (Pryor, 2015). Furthermore, the stakeholders were engaged using the model designed by the International Association for Public Participation (2014), cited in Quick and Bryson (2022). This is illustrated in Table 1.

4. Data collection and analysis

Table 2 presents the expert demographic data analysis for the interview, while Table 3 depicts respondents' feedback collation among the six contractors in assessing COVID-19 impacts during the Movement Restriction Order (MRO). Table 4 summarises the respondent's interview feedback on the impacts of COVID-19 in executing the project.

The coefficient of variability (CV), expressed as the percentage ratio of the standard deviation to the mean measures the dispersion of a probability distribution (Martinez-Pons, 2013). The range value of 0.26 to 0.61 depicts a fair sample representation for the different construction work. A minimum of two personnel were interviewed per site. The respondents' experiences ranged from 3 to 20 years, while amongst these 12 interviewees, 3 were company directors, 2 were senior managers, and the rest (7) were site Engineers/representatives. Most respondents had more than three years of work experience whom the researchers considered fit for the study. Also, to strengthen the data validity, the saturation of the qualitative data collected was verified. This ensured no new information or opinions were obtained amongst the different respondents, which often resulted in the emergence of vital information.

Using a subjective judgement in selecting the participant and a purposive sampling criterion in choosing the "typical case" studies. Five people were administered the questionnaire in each case study to obtain participants'(independent) views and experiences. Amongst the 30 questionnaires dispatched within A, B, C,D, E, and F sites, 20 were fully completed, and ten were voided. The 20 respondents translate to a 67 percent response rate with a confidence level of 95%.

Table 2. Respondent Years of experience and the resulting feedback

Company Label	Years of Experience	Project construction type	Completion Time Before COVID-19 (Yrs)	Expected completion Time After COVID-19 (Yrs)	Project Cost Before MRO (Million Rands)	Expected projected Cost After MRO (Million Rands)
A	6	Roads	2	3	30.50	40.00
B	11	Housing	4	5	40.00	70.00
C	22	Housing	4	5	65.00	95.00
D	10	Water infrastructure rehabilitation	2	3	25.00	35.00
E	3	Building rehabilitation.	4	6	25.00	30.00
F	17	Building Construction	3	4	44.00	51.80
Mean	11.5		3.17	4.33	38.25	47.63
Std. Dev.	6.40		0.90	1.11	13.92	29.26
CV	0.56		0.28	0.26	0.36	0.61

Key: Std. Dev. = Standard Deviation; CV = Coefficient of Variability

A reliability coefficient of 0.60 for the Cronbach's alpha score of six (6) for all the items that constituted the questionnaire depicted acceptable reliability for a newly developed construct. The analysis in Table 3 shows that most of the responses were synonymous across the sites. There were high levels of disagreement in the summary of the cost and time impacts of the COVID-19 lockdown assessment. Still, a sizeable portion of respondents did allege over-bearing implications for cost and time, while the quantity of material delivery to the site was a significant issue. A chi-square cross-tabulation sectional analysis across the Table helps to know which variables are statistically significant in assessing the national lockdown and its aftermath impacts on the construction site. The results show that most statements (the column marked p-value) are significantly at higher levels of agreement. A P-value less than 0.05 signify a substantial contribution and vice visa. In all, the contractor's response impact ranges from material delivery delay, work know-how implementation, and project time to completion elongation and sudden retrenchment of the casual construction worker who found their daily livelihood from the sectorial activities.

Furthermore, the aggregated respondent interview responses to the telephonic interview conducted were summarised in Table 4. The response shows variant causes of dispute, irrational changes in work schedules, and sometimes unrationed cost claims by contractors, despite the government's limited resources to meet the rising various project requirements.

Many respondents said that COVID-19 has caused them to re-evaluate their existing contractual sum. The inability and failure of the client to intervene in a timely and effective way resulted in many disputes arising. Among the most-cited cause of disputes is non-compliance to initial prescripts and improper

understanding of the contract law and licenses, even though large percentages of the respondents were aware of contract terms and obligations. This is consistent with findings by Barsky (2016), Bayat et al. (2019), and Alsharif et al. (2021) argue that future dispute resolution for an unforeseen event like COVID-19 should emphasise the need for re-negotiation in billing, which is at variance with the various construction claims.

Table 5 highlights the bottleneck impacts of COVID-19 found in the traditional workflow and relates solutions to address each one of the emanating challenges in reciprocating the construction company's best solution response to arising conflict.

All contacted contractors stated additional costs and project time elongation due to the pandemic. To explain the role of stakeholder, mediator, and negotiator, in alignment with the construction company workforce matrix, time to completion, and rescheduling budget compromised. The inter-relationship in dispute resolution mechanism demands the integration of different stakeholders whose impact can be evaluated using the 'Influence grid' model as depicted by Chinyio and Olomolaiye's (2009) influence grid model in Figure 1.

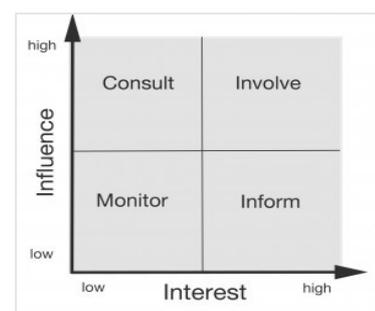


Figure 1: Influence grid model (adopted from Chinyio and Olomolaiye, 2009)

Table 3: Respondents' size to questionnaires among the six contractors' site

Statement Description	SD	D	N	A	SA	Chi-square-value
There is variation in procurement costs during the COVID-19 lockdown	4	4	4	3	5	0.000
There is variation in time to project completion after the COVID-19 lockdown	5	5	4	3	3	0.000
There is variation in total contractual sum and expected project sum during and after the COVID-19 lockdown	4	4	3	4	5	0.000
The work schedule guarantees workers' safety and minimum risk-bearing in the workforce during the COVID-19 lockdown	4	5	4	2	5	0.000
Overhead and the indirect cost was sufficiently affected during the lockdown	4	2	5	4	5	0.000
Which approach works best for you during the lockdown-interest-base or right-based approach?	3	4	3	5	5	0.000

Key: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Disagree

The subsequent section relates to how the influence grid model can be used to resolve disputes based on the technical causes, impacts, and re-evaluation claims by the government agency in executing the project.

This four-levelled quadrant served as a determinant towards ascertaining stakeholders' level of engagement' in the construction and execution of the project. The first category in the quadrant was stakeholders classified as 'High influence/ high interest'. This set of stakeholders was fully involved, and thus they reciprocated accordingly (Mgemane, 2012). The second classification was those classified as 'High influence/lower interest'. With consideration of their disinterest, limited consultations were made with them. However, this category of stakeholders was still consulted as they were highly influential citizens in the rural community (Bourne and Walker, 2005). The third category was the 'Low influence/high-interest group. This set of stakeholders was resourceful and played an essential role in mobilising and engaging other project beneficiaries. Their active participation instigated some community members who were previously not interested in the project (Fassin, 2009). Lastly, the group was classified as 'Low influence/ low interest'.

Although this group of stakeholders barely played any contributory role, they were occasionally updated with relevant information. Thus, based on this precept, these classified sets of stakeholders were engaged at different levels and had differing inputs bringing clarity in achieving the project aim with a high level of satisfaction among beneficiaries.

5. Application of conflict resolution amongst the stakeholders

The construction of the various facilities was facilitated using the following steps supported by Siyongwana and Mayekiso (2011).

- Negotiation
- Mediation and conciliation
- Expert assessment
- Adjudication
- Litigation
- Building bridges

The intervention of a middleman brings a value chain transition to a more collective community bargaining and professionalism in tolerating each other. The series of negotiations were considered useful mainly because the project manager involved these four qualities – wisdom, fairness, stability, and efficiency. A previous win-lose situation was converted into a win-win bargain (Bal et al. 2013). Mediation and conciliation were also used amongst disagreeing stakeholders, which eventually was resolved after a month. As regards disputes regarding the quantification and valuation of work done at the site, the opinion of a structural engineer and quantity surveyor was consulted; hence through their expertise, they gave sound and justifiable reasons why the increased bill should be honoured regarding the construction work done at the site location. Adjudication and litigation were also exercised when a community member intended to sue one of the stakeholders. Amicable settlement of casual workers' wages and salary was resolved through part payment, food subsidies, and promised to note later when financial institutions open to reduce the social poverty and inequality caused by COVID-19.

Table 4: Respondent's feedback summary.

Question	Respondents /feedback
Highlight some of the Covid -19 impacts you notice on your sites.	<i>Field changes, prolonged procurement delivery, project delays, and potential claim issues.</i>
Which methods are most effective in resolving time-to-project completion in construction disputes?	<i>answered (in order): party-to-party negotiation; mediation; and, finally, arbitration.</i>
Is there any discrepancy in the contractual sum/expected contract sum? And if so, do you subscribe to follow the dispute resolution administrative process mentioned in the contract?	<i>Parties' ability to adhere to contractual notice requirements as well as the dispute resolution administrative process in the contract</i>
List common causes of disputes you know arising/affecting workers' safety.	<i>– owner-directed changes and errors and/or omissions in the contract documents.</i>
Are you familiar with the overhead and indirect cost impacts on contract terms and obligations?	<i>intimately knowing the contract terms and obligations,</i>
Which approach will you suggest works best for managing a future unforeseen event like COVID-19? Interest-based approach or right-based approach	<i>Both approaches work well if well-coordinated and completed expeditiously; likewise, the importance of timely design documentation and dynamic work scheduling</i>

Table 5: Company label technical issues and bottlenecks related impact of COVID-19

Company label and work type	Major Bottlenecks Encountered	Solutions
A-Road	Necessary equipment movement to the side resulted in the delay in the filtered bed construction to repair the base and sub-based layered in the road section for water seepage control.	Negotiation
B-Hous1	The resilience of semi-labourers to indulge in menial work and access to in-house changes to the schedule of work and work re-evaluation.	Negotiation
C-Hous2	Traditional use of manual adjustment in retrofitting several workers to report and lack of platform for communication.	Mediation
D- Water	Underground leakages control without the mobile app to state precise GIS location and for cost wastage estimation.	Mediation
E-Building	Fewer participants in stakeholders' meetings conducted during weekdays as compared to weekends.	Conciliation
F- Building construction	Advises and strategies for communicating with the community members were lacking, culminating in some material missing or stolen on site.	Conciliation

6. Results discussion

Testing the formulated hypothesis: HO1: There is no significant difference between the national lockdown and its aftermath impacts on the construction site.

The employed online questionnaire distribution and the posed interview schedule were used to test the hypothesis that affirmed/negated the assertion that COVID-19 impacts the overall cost and time to project completion, irrespective of the lockdown stages. Both the qualitative and quantitative methods substantiate the significance associated with the subject matter in assessing the impacts before and after movement restrictions and on contractors' payment. Respondent response affirmed a positive/significant level of effectiveness in the cost and time, irrespective of the lockdown period or stage. The probability value for the Chi-square test (0.000) is less than 0.05 (5% level of significance), which negates the hypothesis assertion that there is no significant difference between the national lockdown and its aftermath impacts on the construction site but concludes that the arising dispute call for claims and a fair negotiation strategy in achieving an amicable settlement that meets the different stakeholder and company needs irrespective of their different projects' execution.

A general discussion on the analysis of the results was validated with qualitative inferences supported by the literature review. The responses obtained from the questions show litigation was not listed as the top effective method of resolving disputes on construction sites. Some contractors' response to the additional cost claim shows the difference in site, while claims on time to project completion was minimal. Although, the stakeholder response shows that workers' safety was at minimum risk compared to realistic options for an out-of-court settlement. Both the initial contractual sum and the expected project cost have not been complied with, irrespective of the contractual obligations required from the client. However, like criticisms made by participants in Site B, C, and E., their responses do attest that there is an increased dispute rate, but the response rate has not been accorded the urgency required. Cortez and Johnston (2020) further mention that mutual representation of needs promotes fairness and justice in satisfactory work done by both parties, while the failure to understand the impacts of the MCO and/or comply with contractual obligations represents the more significant cause of disputes.

6.1 Categorised themes discussion

The data obtained from the annotated ABCDEF sites' respondents through the questionnaires and interviews were captured and categorised into a set of themes in line with the aim and objectives of this study. In a further attempt to unravel the above six themes, an effort was made to further group them into two general themes: negative consequences and positive consequences, in exploring the different dispute resolution mechanisms for the project's success. The negative impacts denote time to project completion with varying opinions due to miscellaneous logistics as per consideration for workers'

safety during the COVID-19 pandemic. Thus, the positive consequences highlight work quality assurance both in quantity, and quality of material delivery to the site, new payment modality, and additional indirect cost incurred due to delay in project time to completion.

6.2 Procurement modality conflicts resolution among the Stakeholders

Among the aftermath of COVID-19 disruption of work are disputes which emanated due to inadequate or lack of priority set-up in regulating procurement of construction goods/materials while still maintaining standard quality in the procurement delivery. Furthermore, a series of conflicts arose among stakeholders regarding who should bear the risk among the contending construction workers. Thus, causing an ideological clash between the consulting engineer (senior) and other construction fraternity workers (junior) on whom overtime claims are awarded. In contrast, a percentage overhead cost is awarded to the professional staff.

Conflicts of interest among stakeholders in resolving the bottleneck of separating construction procurement from the general procurement acts of government are all emerging gaps to be dealt with in this era of COVID-19. The influence of money-bag politicians to capitalise on sub-standard contract execution and design guidance aberration for their selfish campaign propaganda in the electioneering process are emerging issues that conflict resolution diplomats must pay recourse to. Since there was no agreement amongst either party, the problem was later dealt with in a court of law. Furthermore, the well-detailed contract document averted a series of disputes. A poor or incomprehensive contract document may have resulted in a conflict between the structural engineer and the project manager (Bal et al. 2014).

• Time to project completion

According to Mohammed et al. (2018), many successful projects should meet not only the required quality output standards but also be cognizant of the budget and time constraints. Both the clients and the contractor commit to an agreed time term in satisfying their demands and needs. More often than not, disputes occur due to irregular contract terms and conditions, which can lead to unabated litigation due to divergent alternative views in meeting the overall organisational and individual contractor goals. The resolution mechanism organ examines all positive and negative side-effects characterising the bone of contention before arriving at a timely resolution mechanism that appeals to all.

• Contraction sum and Expected project cost dispute resolution.

COVID-19 presents the construction industry with the challenge of disrupting strategies for planning, coordinating, and executing various projects, from the initial conceptual cost to the addition of expected indirect project cost to completion variables. To achieve a desirable dispute outcome, negotiation and mediation provide a useful, structured approach to resolving disputes

in the construction site's situation, as supported by Xu et al. (2018). The mediator arranged or called for a meeting in which all parties involved can come together through conflict management stages not limited to preparation, discussion, clarification of goals, readiness towards a Win-Win outcome, compromise agreement, and implementation of the agreed line of action. Though, the execution of the negotiation process is dependent on many determinant factors, such as the mediator's personality, skills, and education level capacity. These chosen design paths may lead to diverse views before arriving at amicable solutions.

- **Worker safety and minimum risk guarantee**

Stakeholder engagement enhances efficiency and effectiveness while implementing the construction project. Since the engagement of stakeholders permits the involvement of other parties' commitment to facilitating transparent decision-making, the involvement of stakeholders was no doubt significant in the construction project as their participation had some advantages. The stakeholder involvement in the project was predominantly two sets of individuals. On one side were technocrats, experts, and political authorities; on the other were community members who were the beneficiaries of the intended project (Bal et al., 2014). The decision on the project's minimum risk and sustainability stakeholders was premised upon the stakeholder's view, which recommended that stakeholders be involved at the project's inception. Such early involvement will create a sense of ownership of the project, enhance commitment amongst involved parties, increase expertise, and contribute intuitive knowledge towards making sense of belonging in the community.

- **Overhead and indirect cost resolution**

The middleman ensures value for money, work quality satisfaction, personal ego elimination, and inadequate compromise scandal for both the contractor and the client with minimal loss. It proves saving chances for the contractors, which are more likely to continue the work with the other party in the future without rancour (Jiang and Zhao, 2019). The overhead and indirect costs incurred are usually embedded in the miscellaneous, but this does not arise. Thus, the intervention of a mediator provides a note to take this risk from the contract sum without the need for negotiation or an arbitration panel.

An announced end of COVID -19 restrictions will mean no more laws on social distancing; No curfews or gathering limits; No mask mandates, and zero limits on social gatherings. This slogan of social distancing is a stylish way of dogging work, and casual workers take time to maximise their daily wages. Likewise, the arbitration process takes longer appointments fixing all in the name to avoid being infected by the diseases. All these increase the overhead cost and, invariably, the time construction professionals spend handling disputes.

- **Building bridges through an interest-based approach and right-based approach**

According to Oghenechuko and Godbless (2018), the interest-based approach seeks parties to bargain and a negotiating process by identifying the individual shared interests rather than dwelling much on their log of claims, while the right-based approach conversely shares the mutual understanding from the other side with a series of rules to guide the conversation. The negotiator leans toward co-operational altitude in achieving an amicable resolution, which tends to reach a satisfactory process of getting the desired results. Cooperation has been a pointer in the avoidance mechanism before negotiation efforts by the parties. However, the mediator's task is constrained by some drawbacks when mistrust, emotional barriers, and concerned parties are compelled to participate, thereby shifting the focus from the real issues to an unwillingness to negotiate in the dispute when payment is involved. The egoism tendency to participate cannot be compelled except when ordered by Court.

The unique experience gained with negotiation, arbitration, and mediation under the interest-based and right-based approaches help in bargaining and bringing professionalism in tolerating each other. Negotiation after fracas or disagreement makes the work remain to stand. Still, it harms and deters the value gain, thereby rendering the work quality not to appease a common goal (Iyiola and Rjoub, 2020). However, the three main dimensions of negotiation (procedural, interactional, and distributive justice) are not independent. Procedural negotiation refers to the fairness of the process used to address the different party's complaints or problems. In a distributive negotiation, the parties are only looking for their gain. In contrast, integrative negotiation is more difficult because the concern is about the relationship's sustainability with the other person.

The legal process dealing with construction disputes is usually tailored to answering why there should be a process and how the process should be applied (Chukkol, 2021). It viewed dispute resolution from three perspectives: power, rights, and interests. The legal perspective seeks redress in a law Court. The arbitration court process tends to ensure that the concerned parties should be in control of how to deal with the dispute instead of only bystanders in control. The arbitrator dwells on different scales of costs and elongates the case process, which is later reviewed by the courts to award costs. Although the recourse to out-of-court settlement is with minimal cost while disaffection on some of the arising irregularity caused by COVID-19 is resolved gradually, this line of action entails continuous engagement, dialogue, and involvement of other stakeholders for this non-confrontational approach in determining the management of the crises.

On the other hand, the pros of arbitration enjoy the confidentiality and finality of the Court. The likelihood of a future relationship may jeopardise with your opposing party, except if an experienced mediator was protracted, then an amicable resolution may not lead to total failure (Caputo, 2016). Mediations tend to be quicker than litigation, but if an agreement is not made, both parties may have to waste their time fulfilling the agreement.

Though litigation or arbitration may not be cost-effective, it is usually the last option in dispute resolution caused by Covid -19.

- **Misconceptions about Force Majeure**

The construction industry must also be aware of the serious consequences concerning the assertion of force majeure or frustration in a contract. Controversial arguments exist about whether the coronavirus outbreak has frustrated the contract or caused an anticipatory breach regarding project completion time, material delivery logistics, new working environment, and additional costs incurred (Lai, 2020). Either of these legal rights claims may amount to a breach of the contract. On the contrary, the inclusion of frustration is generally more severer than a force majeure clause insertion. Frustration may result in the contract automatically being forfeited or discharged by the law court (Casady and Baxter, 2020). It can suddenly change the face of the contract rather than suspending performance. The parties affected by force majeure "shall give written notice to the other party immediately upon the occurrence of a Force majeure event, and if the said event is of such a nature that it will: "Result in the impossibility of performance of an obligation going to the root of the particular contract, the party not so affected (: the other party") shall be entitled, upon receipt of notice of the Force majeure event, to terminate further performance of the agreement.

The COVID-19 pandemic has undoubtedly affected construction companies whose parties construct the negotiation power and ability to read the government argument as matters were resolved through a consultative meeting in defining the issues or receiving force majeure claims—this bargaining strategy help to resolve the conflict through proper communication and understanding of the situation. The negotiation modality approach requires changing emotive supply and demand needs into a customise and refined based on empathy, understanding, and invoking a claim of frustration or force Majeure.

7. Charting way forward

The exploration of the game theory concept will serve as an expert solution in the avoidance of conflict and resolving many of the controversies resulting in the dispute caused by the pandemic in the already weak construction industry. The study cases suggest internal restrictions have been removed or downgraded to 'recommend' where robot technology could be deployed to deliver essential materials, providing advanced relief in managing time to complete the different building projects.

Also, mastering the act of mediation, negotiation, and reconciliation techniques are evolving innovative means that have not been exhausted in dispute resolution. The distinct roles of negotiators can be compelling if collaborating, compromising, and accommodating what is right are avoided, all in the name of self-ego and personal aggrandisement. Hence, Low (2020) advocates mediation, negotiation, and reconciliation as promising tools for resolving and minimising construction disputes toward their successful execution.

Social responsibility and sustainable development are concepts whose integration during COVID-19 has led to significant progress in how the construction industry perceives dispute resolution through arbitration and litigation operations mechanisms in project management. It is not only about policies or steps taken to meet legal redress requirements but also about social equality, justice and accountability, bearing in mind the links between service delivery decline and improved policy in support of poverty alleviation and the well-being of workers are paramount.

Covid -19 has compelled contractors and other stakeholders (the bricklayer, welder, carpenter, clerk of work, and labourer) to work under a stringent strange environment that calls for collaboration among the various parties concerning their wages and compensation. Each artisan could compromise and accommodate each other in the interest of the work.

The invocation of a force majeure claim with the advent of coronavirus may not constitute part of its concept assumed in the contract's general conditions, intended to fulfill and used in arbitration among the dissatisfied experts in project management. As a general matter of fact, the client representative and the contractors must seek legal advice before a force majeure event or a contract has been frustrated to enjoy the immunity to continue the project instead of being discharged. Thus, the design action steps of the research could be deployed by contractors in consultation with the government (client) stakeholders in reaching an amicable solution.

8. Conclusion and Recommendation

Regardless of the issues facing the contracted construction projects, this study has explored multi-tier dispute resolution mechanisms not limited to arbitration and mediating adjudication but to other emerging contractors' adopted dispute methods. The study explores different approaches to construction disputes in the context of the COVID-19 pandemic experience in a South African environment. Using an action research approach where a mixed method was used in showcasing the different styles of negotiations to serve as a managerial intervention in the planning and coordination of the project. The study has provided a broad overview of contractors' adopted dispute resolution methods of mediating adjudication during an unforeseen situation like the COVID-19 pandemic.

Furthermore, the study has shed more light on why successful projects require careful upfront planning to achieve timely project completion within budget while still giving the client the best value for the expended money. The COVID-19/pandemic has exposed pricing as a significant contract dispute in the supply and demand chain networks. Thus, unlocking new funding options to measure work as emerging lessons learned in COVID-19. This will go a long way to curb the discrepancy witnessed towards a peaceful dispute resolution for the construction industry.

The study has highlighted the role of negotiation, mediation, and arbitration rather than litigation as a viable future scenario in resolving conflict. Thus, a successful negotiation is about constant engagement and discussion

to reach an amicable agreement, compromise to excuse a party's non-performance, or justify the termination of the contract. The study reinvigorates the need for: - clear contract language, better design drawings in the hope of unforeseen, risk management training, dynamic processes in project schedule documentation, and the need for proper communication as an effective tool for dispute avoidance and resolution in the post-COVID. The study recommends further constructive and robust discourse within the arbitration system to appease the contractors and clients where mediators and negotiators failed to resolve the disputes.

Limitations of the study

This study did not consider the projects on a case-by-case basis based on the contract term, facts, and circumstances but on a lump case. Also, the adopted mixed methods are time-consuming, costly, and could be subjected to biased

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from interviewers. Furthermore, the study did not consider the interdisciplinary nature of the different projects. Subsequence studies may take broader and similar projects in the same geographical location for key consideration of different styles of negotiations.

Conflict of interest

No conflict of interest was presented.

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