

Navigating the Challenges: COVID-19's Effects on Disadvantaged Project Managers in the Construction Industry

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Abstract

The COVID-19 pandemic has significantly impacted the construction industry, particularly disadvantaged project managers. This study will identify and assess the impact of the pandemic on project performance, the organization of project teams, and the hindrances to future project management development in the construction industry. A comprehensive literature review was conducted, which included recently published literature, reports, and other related documents. Additionally, twenty project managers in the construction industry were given survey questions to answer to gather data. The findings revealed that COVID-19 has significantly changed the team dynamics of project teams, affected project performance, and created hindrances to the future development of project management. This study highlights the need for increased professionalization and training in project management to address the impact of the pandemic on disadvantaged project managers in the construction industry.

Keywords

COVID-19, Disadvantaged, Project manager, Construction industry

1. Introduction

The COVID-19 pandemic began in 2020 and has significantly impacted many industries, including construction. The federal government quickly imposed major enforcement and restrictions, which caused a significant shift in working dynamics and norms. This pandemic has led to the adoption of various measures, such as social distancing, wearing face masks, hand hygiene, and several other safety measures to reduce the spread of the disease.

While many businesses shut down during the pandemic, the construction industry had to continue its work, as several critical projects, such as healthcare facilities, needed to be completed to protect the health and safety of the community. However, the subsequent social isolation and distancing measures were challenging to practice for those deemed essential. Project managers had to ensure business continuity using various communication methods while dealing with the new reality and ever-changing regulations.

Although there have been some studies on the impact of COVID-19 on construction projects and their management, there is a significant gap in research regarding its impact on disadvantaged project managers. The disadvantaged project managers often belong to a group that is underrepresented in the construction industry. This can include racial and ethnic minorities, women, and other marginalized groups. Therefore, this study addresses this gap by examining how COVID-19 has affected disadvantaged project managers. The pandemic brought unprecedented and sudden changes, resulting in difficulties and challenges for project managers (Salamin et al., 2021). Disadvantaged project managers, in particular, experienced anxiety, guilt, hostility, and aggression while managing their projects throughout the construction industry's uncertainty. However, improved planning, communication, and work sequences were revised, which helped managers deal with the threats of trauma-related disorders caused by people being exposed to and possibly dying from COVID-19 or being severely hospitalized.

The researchers aim to explore the effect of COVID-19 on disadvantaged project managers within the construction industry. The study investigates the impacts of COVID-19 on construction projects and identifies the specific preventive measures adopted to combat the pandemic. This paper will provide insight into the driving forces and problems associated with implementing technology project managers use. More precisely, the paper explores the

following questions pertaining to the effects of the pandemic on construction projects, more specifically on disadvantaged project managers:

RQ1: How have changes brought about by COVID-19 affected the management approach of disadvantaged project managers?

RQ2: What is the impact of COVID-19 on productivity in the construction industry?

RQ3: To what degree have the project management capabilities of disadvantaged leaders been influenced by COVID-19?

This study will focus on the effects of the pandemic on project performance, organization of the work of project teams, and hindrances to the future development of project management in the construction industry. The study will also explore potential solutions and strategies for addressing the challenges faced by disadvantaged project managers in the construction industry.

2. Literature Review

The COVID-19 pandemic significantly impacted the construction industry, affecting every aspect, including project management. A comprehensive review of the literature indicates that COVID-19 has changed the team dynamics of project teams considerably, affecting project performance and creating hindrances to the future development of project management. A review of the existing literature with a particular focus on disadvantage project manager reveals the following insights on various project management parameters.

2.1 Effect on Project Performance

Several studies have shown that COVID-19 has negatively impacted project performance in the construction industry. The primary factors contributing to this negative impact are supply chain disruptions, labor shortages, and material delivery delays. A study by Rajput (2021) found that COVID-19 had resulted in project delays, cost overruns, and reduced productivity in the Indian construction industry. Similarly, research conducted by Alshehri et al. (2021) revealed that the pandemic had negatively affected project progress in the Saudi Arabian construction industry. S. Islam and M. Islam (2021) provide a comprehensive review of the impact of the pandemic on various aspects of construction project management, including project planning, scheduling, cost management, and risk management. Nunes et al. (2021) highlight how the pandemic has created challenges and opportunities for construction project management. P. Kumar and P. Singh (2021) underlined the pandemic's disruptions, causing delays and budget overruns, while advocating for technology and remote management to enhance project performance.

2.2 Organization of the Work of Project Teams

The COVID-19 pandemic triggered substantial changes in project team work organization. Social distancing measures, travel restrictions, and lockdowns necessitated a shift to virtual communication and remote work. Shalaby et al. (2021) highlighted the increased reliance on digital technologies for project management during the pandemic. Zainuddin et al. (2021) corroborated the surge in virtual communication tools. In addition, the pandemic significantly affected work organization and communication among project team members. Remote work and virtual collaboration tools became essential, posing challenges in effective team communication, collaboration, and project progress monitoring. Bunea and Ciolofan (2021) stressed the pandemic's role in highlighting the need for digital technologies and effective communication tools in construction project management.

2.3 Advancement of Project Management

In addition to shifts in project team dynamics and communication, the COVID-19 has also presented several challenges to the future development of project management in the construction industry. Alaloul et al. (2021) investigated the impact of the pandemic on supply chain management in the construction industry and found that the pandemic disrupted the supply chain in several ways, such as delays in deliveries, shortages of materials, and increased prices of raw materials. Lee et al. (2021) examined the effects of COVID-19 on construction project management in South Korea. They found that the pandemic led to a decrease in productivity, an increase in project delays, and an increase in project costs. Kizil et al. (2021) investigated the effects of COVID-19 on health and safety practices in the construction industry. They found that the pandemic led to changes in health and safety practices, such as increased

use of personal protective equipment (PPE) and social distancing measures. Hajjar et al. (2021) examined the impact of COVID-19 on the financial performance of construction projects in the United Arab Emirates (UAE). Gupta et al. (2021) investigated the effects of COVID-19 on sustainability practices in the construction industry. They found that the pandemic shifted focus toward sustainability practices, such as green building and renewable energy sources. Kang et al. (2020) found that the pandemic has significantly impacted project budgets and profitability, with many companies needing help to maintain their financial ability.

A majority of the literature reviewed underlined the importance of accelerated digital technology adoption to mitigate these impacts should there be more situations like these in the future. Abdullahi et al. (2021) identified that COVID-19 had brought to light the importance of digital technologies in project management. Similarly, Al-Hussein et al. (2021) research revealed that the pandemic had emphasized the need for more resilient supply chains and better risk management strategies in the construction industry. The study suggested that digital technologies, such as cloud-based project management systems and remote collaboration tools, can help mitigate the negative impacts of the pandemic on project management in the construction industry.

2.4 Impact on Disadvantaged Project Managers

There is a lack of research on the impact of COVID-19 on disadvantaged project managers in the construction industry. However, studies have shown that disadvantaged project managers face unique challenges in the industry, including discrimination, bias, and limited access to opportunities. A study by Dasgupta et al. (2020) found that disadvantaged project managers in the construction industry faced discrimination and limited opportunities for career advancement. Similarly, research conducted by Loulizi et al. (2017) revealed that disadvantaged project managers in the construction industry faced bias and exclusion.

3. Methodology

This research used a qualitative study. This approach is most suitable for studying complex, dynamic, and context-dependent phenomena, such as the impact of the COVID-19 pandemic on disadvantaged project management in the construction industry. This design also allows for collecting rich and detailed data, which can be analyzed in-depth to generate insights into the research questions. In reviewing the existing literature, the research developed factors that play a significant role in how COVID-19-led changes affected the management style of disadvantaged project managers, how productivity in the construction industry has been affected, and how COVID-19 affected disadvantaged leaders' ability to manage projects. Those factors are as follows:

- Communication transparency and efficiency
- Responsibility and answerability
- Team morale and motivation
- Team efficiency and output
- Deliverable excellence and quality
- Project expenses and budget
- Leadership involvement and management commitment

3.1 Research Questions

To assess the credibility of the research questions, an investigation was carried out by designing and implementing a questionnaire survey. This survey aimed to gather input from various project stakeholders - individuals who have a role in or are influenced by the consequences or actions of a project - regarding communication practices and standards during challenging situations. Additionally, its purpose was to determine the extent to which these factors have impacted the overall project management procedures. Accordingly, the following set of questions have been formulated to help answer the following research questions:

RQ1: How have changes brought about by COVID-19 affected the management approach of disadvantaged project managers?

- 1: How have project managers had to adapt their management style in response to the COVID-19 pandemic in the construction industry?
- 2: What impact has the COVID-19 pandemic had on productivity in the construction industry, and how has it affected disadvantaged project managers specifically?
- 3: What additional stress and anxiety have disadvantaged project managers experienced due to the COVID-19 pandemic in the construction industry?

4: In what ways has the use of technology changed project management in the construction industry during the COVID-19 pandemic?

5: What preventive measures have been implemented in the construction industry in response to the COVID-19 pandemic, and how have they affected project management?

RQ2: What is the impact of COVID-19 on productivity in the construction industry?

6: How has the shift towards remote management styles affected the ability of project managers to oversee construction projects effectively?

7: How have disadvantaged project managers been affected differently than non-disadvantaged project managers during the COVID-19 pandemic in the construction industry?

8: How has adopting new technology helped improve communication and collaboration between project team members during the pandemic?

RQ3: To what degree have the project management capabilities of disadvantaged leaders been influenced by COVID-19?

9: How has remote management impacted project management in the construction industry during the COVID-19 pandemic?

10: What is the overall impact of the COVID-19 pandemic on disadvantaged project management in the construction industry?

11: What are the positive outcomes of the COVID-19 pandemic on project management in the construction industry?

12: What steps can organizations take to support disadvantaged project managers during times of crisis, such as the COVID-19 pandemic?

3.2 Data Collection

The survey was distributed to twenty-five (25) project stakeholders located in Baltimore, Maryland. However, only twenty (20) responses were received and subsequently examined, as outlined in the subsequent sections titled "Demographics." The participants were selected using purposive sampling, which made the sample representative of the population of interest. The surveys were emailed out to the participants, and there were multiple-choice and sample open-ended questions that allowed them to share their experiences and perceptions of the impact of the COVID-19 pandemic on their project management practices.

3.3 Data Analysis

The data collected from the interviews were transcribed verbatim and analyzed using thematic analysis. The analysis involved identifying patterns and themes in the data and organizing them into meaningful categories. The analysis followed a deductive approach, where the codes and themes were derived from the research questions and literature review.

4. Results and Discussions

4.1 Participant Demographics

Twenty (20) participants were recruited for the study, all with experience as project managers and professionals in the construction industry. The survey identified twenty disadvantaged construction professionals with project management experience, while the other five were elevated to a position higher than project management. The participants' demographics are summarized in Table 1 below.

The surveyed population is comprised of project professionals within the 21-40 age bracket, often associated with the digital era. This suggests they are likely familiar with the various technological tools used for remote work, minimizing the likelihood of encountering difficulties. Regarding gender distribution, 55% of participants identified as male, while 45% identified as female. The surveyed individuals represented various organizations in nature and size, with project management professionals constituting the largest group. Other roles included vice presidents, senior vice presidents, directors of field operations, and owners of disadvantaged businesses. Notably, the sample achieved a relatively balanced representation across organization sizes.

The results of this study highlight the significant impact that the COVID-19 pandemic has had on disadvantaged project management in the construction industry. While changes in management style, the use of technology, and the adoption of preventive measures were all reported, the impact on productivity and the additional stress and anxiety experienced by disadvantaged project managers were the most significant concerns. These findings

underscore the need for targeted support and resources for disadvantaged project managers in the construction industry, particularly during times of crisis. The analysis of the interviews revealed several themes related to the impact of COVID-19 on disadvantaged project managers in the construction industry. These themes are discussed below.

Table 1. Participant Demographics

Table 1 Demographics		
Parameter	Classification	Number of Response
Gender	Female	9
	Male	11
Age	20 – 30	2
	31 – 40	7
	41 – 50	7
	51 - 60	1
	Over 60	3
Career Position	Construction – Project Management	14
	Financial	0
	Healthcare	0
	Engineering	0
	Information Technology	1
	other	5
Number of Employees	Less than 100	4
	100 – 1,000	1
	More than 1,001	15
Difficulties and challenges for minority project	Anxiety	16
	Guilt	3
	Hostility	7
	Aggression	7
	All of the above	6

4.2 Changes in Management Style

All twenty (20) participants reported that their management style had to change due to the pandemic. Most participants said they had to adopt a more hands-on approach to project management to ensure that projects were completed on time and within budget. Several participants noted they had to be more flexible and adaptable to project schedules, timelines, and scope changes. The pandemic has shifted towards more remote management styles, with many project managers working from home. Some participants reported that this has resulted in a loss of direct control and oversight, making it difficult to manage projects effectively. However, others said the shift towards remote management has resulted in more frequent communication and increased transparency, improving project management.

4.3 Productivity

The impact of the pandemic on productivity was a significant concern for all participants. Ten of the twenty participants reported that productivity had been negatively impacted by the pandemic, with delays in construction schedules and disruptions to the supply chain being the primary factors. Four participants said that productivity had increased due to improved communication and the adoption of new technology. Several participants reported that the pandemic had decreased productivity due to disruptions in supply chains, labor shortages, and delays caused by adopting preventive measures. Disadvantaged project managers said that they were particularly affected by these disruptions, which were compounded by additional stress and anxiety caused by the pandemic.

4.4 Use of Technology

The majority of participants reported that the pandemic had accelerated the adoption of technology in the construction industry. Several participants noted that using technology had helped improve communication and collaboration between project team members and increased productivity. Many participants reported that the pandemic has led to increased use of technology in project management, such as virtual meetings and remote collaboration tools. This has been seen as a positive outcome of the pandemic, allowing for more efficient communication and collaboration.

4.5 Additional Stress and Anxiety

Several participants reported that the pandemic had increased stress and anxiety, affecting their ability to manage projects effectively. Disadvantaged project managers said they were particularly affected by these mental health issues, often related to job security and financial stability concerns. The findings indicate that participants and their organizations have implemented various systems and channels to maintain communication and working relationships.

4.6 Adoption of Virtual Communication Tools and/or the Shift to Work from Home

Participants were surveyed to gauge their views on factors influencing their decision to work from home using virtual communication tools during the pandemic. Responses were recorded on a 5-point Likert scale, ranging from strongly disagree to strongly agree, regarding the negative impact of remote work on various project aspects. Figure 1 illustrates consensus among respondents on the negative effects of remote work on team morale & motivation, deliverable excellence & quality, and management engagement & leadership. However, opinions on responsibility & answerability, team efficiency & output were inconclusive. Similar uncertainty was observed in responses regarding communication transparency and efficiency, with a tendency toward being unaffected. The survey results indicate that disadvantaged managers expressed concern about the potential negative impact of remote work on project success, adding complexity to their decision-making process.

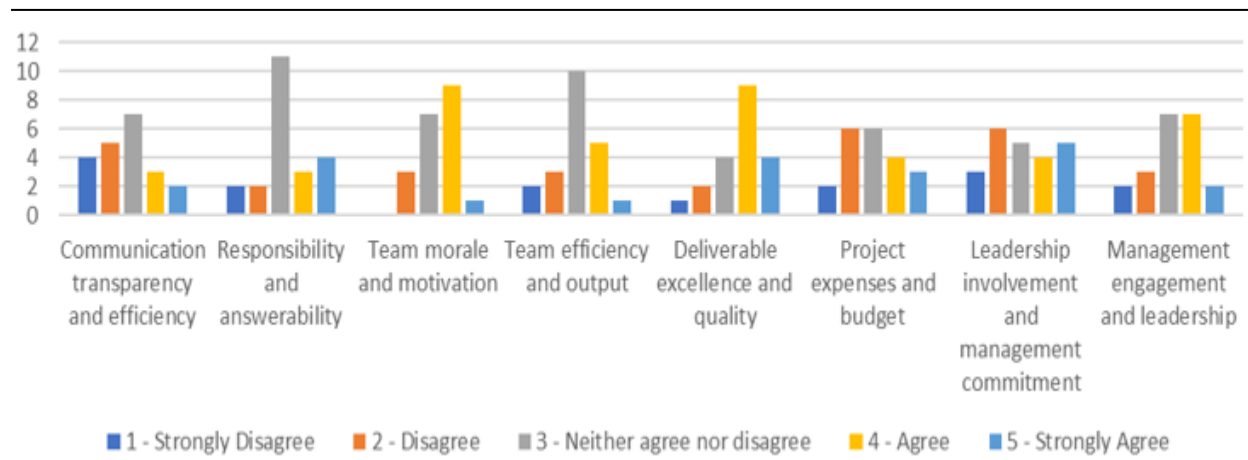


Fig. 1. Negative Impact of Work from Home (WFM) on Construction Projects

5. Conclusion and Recommendation

In conclusion, effective project management during the COVID-19 pandemic requires clear goals, flexibility, teamwork, communication, and collaboration among team members. An inclusive approach, regular training sessions, and check-in meetings are vital for team cooperation and Lean Thinking principles. Organizations must prioritize health and safety compliance while adapting to the challenges brought about by the pandemic. While productivity may have decreased, the shift to online meetings and technology usage can mitigate the impact, although it may hinder some aspects of team collaboration.

The research also explored specific challenges faced by minority project managers, emphasizing the need for their support and equal opportunities for career advancement. Recognizing social disparities and addressing language barriers in remote work settings fosters an inclusive environment for all project managers.

In the construction industry, the pandemic has significantly affected productivity due to supply chain disruptions, material shortages, and health and safety issues. Project delays and increased costs have resulted. To address these challenges, project managers have implemented safety measures and continuous analysis during project development stages to enhance productivity and mitigate pandemic-related impacts.

In summary, project management during the COVID-19 pandemic necessitates adaptability, inclusivity, and technology usage to mitigate challenges and prioritize team health and safety. Supporting minority project managers and addressing social disparities are crucial for creating a more inclusive project management environment. In the construction industry, productivity challenges can be managed through safety measures and continuous analysis during project development.

Given the limited research on how COVID-19 impacts disadvantaged project management in the construction industry, it is challenging to draw a broad conclusion. Based on the existing literature, it is clear that the pandemic has disproportionately affected minorities, with higher rates of illness and death. It is also evident that the pandemic has significantly impacted the construction industry, affecting productivity and increasing costs. Future research should focus on understanding the specific effects of the pandemic on disadvantaged project managers and identifying strategies to mitigate these impacts. It is also crucial to address the broader societal inequities that the pandemic has highlighted and exacerbated. Further research is needed to address this gap and identify best practices for small and large businesses dealing with pandemics. This knowledge will be crucial in preparing for future pandemics and developing practical plans to address the challenges faced by project managers.

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