

Article

An Exploratory Factor Analysis for Conflict Resolution Methods among Construction Professionals

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Abstract: This paper aims to evaluate various methods of resolving conflict among construction professionals (CPs) in Nigeria. A quantitative research technique was utilised. This study used well-structured questionnaires which were forwarded to numerous CPs in the Southwest of Nigeria. A total of 150 questionnaires were sent out and 135 were received back from respondents. The research revealed some major approaches to conflict resolution among the CPs, such as collaborating, accommodating, negotiating, compromising, mediating, arbitrating, mediating-arbitrating, contending, obliging, early neutral evaluation and avoiding. This study is limited to construction professionals (CPs) that are members of Nigerian professional bodies and just 135 respondents took part in the survey. This study recommends that further studies should use other analysis methods to assess conflict resolution techniques among the CPs. The results from this study will enhance the knowledge of CPs in Nigeria of numerous methods of resolving conflict. Furthermore, the outcomes will help CPs make use of collaborating and accommodating in settling conflict within their individual professional bodies. Previous studies on conflict resolution methods only concentrated on contractors and consultants in construction projects but this present study contributes to the body of knowledge by assessing conflict resolution methods among CPs within their individual professional bodies. Additionally, the exploratory factor analysis (EFA) utilised in this study is novel since previous studies have not employed this analysis method. Therefore, it is recommended that CPs should be collaborating with one another in order to solidify their relationship and enhance their performance within their professional bodies.

Keywords: conflict; conflict resolution (CR) methods; Nigeria; construction professionals (CPs); construction industry (CI); professional bodies



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1. Introduction

Conflict resolution (CR) involves CPs in a compromise procedure and allows them to settle individual differences and understand their diverse principles. CR recognises concern among CPs that they should settle their disagreements themselves and not have to settle for the compulsory choice [1]. According to Alam et al. [2], conflict resolution is the approach of reducing destructive conflict aspects while improving constructive conflict aspects. CR in Nigeria has been established on realising the interest of CPs and their genuine aspirations with no upholding legal entitlements. According to Mills and Mene [3] (p. 540), conflicts require to be resolved efficiently. It is not only necessary to settle the conflict; it is also important that the contradictory professionals do not end up experiencing any emotive tension throughout the CR procedure. Furthermore, Stanlaus [4] (p. 68) asserted that the method used by experts to resolve conflict, if a cooperating approach is accepted, must be to establish the “finest” settlement possible, despite the possibility that one or both CPs views the settlement as undesirable. Both experts should focus on seeking a settlement setting. Previous studies have concentrated on CR among stakeholders, contractors, and other project teams. This study is precisely focused on conflict resolution methods among

the construction professionals' professional bodies, i.e., how can conflict be resolved within professional bodies? Furthermore, the motivation for conducting this study in Nigeria is that previous studies on conflict resolution methods only concentrated on contractors and consultants in construction projects, but this study fills the gap by assessing CR methods among CPs within their different professional bodies in Southwestern Nigeria. Additionally, the analysis method applied in this study is unique since earlier studies have not employed it in addressing conflict resolution methods. This study evaluated various methods of conflict resolution amongst CPs in Nigeria.

2. Methods of Resolving Conflict among CPs

2.1. Avoiding

Avoidance is reacting to incompetence or inadequate understanding of an unpleasant difficulty by being ambiguous. Zhang et al. [5] emphasised that avoiding can also be identified as a disregarding approach. The scholars asserted that avoidance involves delaying circumstances and retreating from contradictory problems. Although, the repression of controversy generates slight immediate dealings with contenders among Nigerian CPs. Ogunbayo et al. [6], emphasised that avoiding as a conflict resolution method in Nigeria is a condition of conflict avoiders as they overlook conflict and find somewhere else to be any time conflict occurs. This approach demonstrates little concern for the self or others in the professional body. Aktar and Hassan [7] emphasized that avoiding strategy is universally discouraged in the workplace environment since the avoiding approach does not settle the situation of any conflicting organisation and hence the issue stands still. Furthermore, Vesperi et al. [8] asserted that in avoiding, the expert chases neither their personal interests nor those of the other professionals. Therefore, he does not deal with conflict. Unlike the opinion of Thakore [9], the CPs trust it is better to elude a conflict instead of settling it. This sort of technique of settling conflict is beneficial in upholding a relationship which would be damaged by CR. The problem within in the professional body though, remains unsettled. According to Tabassi et al. [10], the avoiding method seeks to smooth over misunderstanding by reducing communication about the issue. A reduced intensity of interaction is evident when there is a decreased commitment to CR.

2.2. Contending

Jeong [11] describes contending as a way of settling conflict based on achieving a victory; conquering other experts by demonstrating how inaccurate they are. Copley [12] opined that a contending approach possesses fantastic interest for oneself that is measured by a for personal accomplishment, even to the detriment of others. The contending approach is different from the collaborating technique, which guarantees a way out of conflict in order to meet the desires of all professionals involved.

2.3. Accommodating

The accommodation style is usually utilised in settling conflict. Accommodation style is more apparent when professionals share a common concern to discover choices which accomplish common aspirations. Helms and Oliver [13] declare that accommodation means the generating of an element to influence contradictory CPs. While Khan et al. [14] identified accommodating as another important approach used in settling conflict within an establishment since CPs are more likely to adjust themselves to the current situation without additional battles so as to settle conflict at the start. Additionally, Alimba and Abu [15] emphasised that the accommodating approach comprises a situation whereby an individual ignores his/her personal concerns to please the concern of others. CPs that uses this technique give in to demands, even irrational ones, so as to avoid misunderstanding. Maureen et al. [16] opined that accommodating involves reducing to a bare minimum any variations, whether observed or real, while concentrating attention on other professional opinions regarding the same situation.

2.4. Negotiating

Negotiating among professionals can help in resolving conflict within construction professional bodies. Cleary [17] opined that negotiation is the procedure whereby professionals resolve diversities as well as issues between themselves. Communication is a straightforward and formal method used amongst CPs who are keen on a consensus for mutual gain. It is an affair that establishes dialogue among CPs with the target of achieving an accord within the professional body. In negotiation, professionals engage in straightforward dialogue and meeting to resolve the contradictory situation [18]. Chikwe [19] opined that negotiation normally transpires throughout the early phases of conflict when the relationship between individuals is amiable or at the de-intensification stage when a relationship has been reinstated.

2.5. Mediating

Mediating is a method by which professionals can resolve conflict. Mediation concerns a personal process in which an impartial third party assists other individuals to examine a difficult condition and come to an agreement between them [20]. Cheung and Yiu [21] counted mediation as among the main approaches of conflict resolution. According to Ojo and Folayan [22], mediation is based on the involvement of a third, unbiased individual that helps individuals to arrive at an agreeable settlement. While Heather [23] specified that mediation has emerged as an efficient method of conflict resolution which is initiated by “relationship-based conflict”. The assignation of exterior experts might help in intervening amongst the concerned experts in CR [24].

2.6. Arbitrating

Arbitration means a way of settling conflict by involving a third, unbiased individual, referred to as an arbitrator, after the evidence has been assessed, and consideration has been given to the arguments of both experts and the experts choose settle the situation [20]. Gulghane and Khandve [25] describe arbitration as a method of settling conflict that requires that the experts should agree to refer their situation to an arbitrator. Such an agreement is termed an arbitration agreement. Arbitrating as a way of settling conflict using a third, unbiased individual, known as a mediator, after the evidence has been assessed and consideration has been given to the arguments from both experts and a choice has been made to deal with the situation [20].

2.7. Mediating-Arbitrating

Mediating-Arbitrating can be used in settling conflict among professionals. It is a hybrid method that uses both mediation and arbitration. The contradictory CPs agree to attempt mediation first within the professional body but give the unbiased experts the chance to generate a choice in instances where mediation amongst CPs is not productive [20]. The foremost advantage of this mixture of mediation and arbitration is that it provides CPs not only the opportunity to establish and authorise their individual tenacity, but also the guarantee that if the CPs do not agree to a resolution in mediation, their battle would be resolved by a final and binding award.

2.8. Early Neutral Evaluation

According to Anyanwu et al. [20], early neutral evaluation as a way of resolving conflict permits the utilisation of a court-assigned attorney to assess the disagreement between CPs before the trial phase. The solicitor assesses the details of the situation between the CPs and instructs the experts to attempt settlement.

2.9. Collaborating

The collaborating of professionals can be used to settle conflict. Collaboration is a method in which CPs attempt to operate jointly with other professionals. Mboya et al. [26] denotes it as a productive relationship. Crystal [27] stresses that the collaboration approach

demonstrates the CPs' inclinations, as well as their constraints and involves each expert in creating solutions. According to Tsuma and Ndlovu [28], collaborating is among the most important approaches to resolving disagreement and needs bravery and considerable interest. According to John-Eke and Akintokunbo [29], the collaboration technique is intended to satisfy the requirements of conflicting individuals when the members have jointly significant ambitions. While Anni and Annika [30] (p. 80) opined that collaborating means looking for the best, win-win result that fully satisfies all individuals involved. The benefit of embracing the collaborating method is that it allows all the experts content with a correct ruling [31]. Drakulevski, Nakov and Taneva-Veshoska [32] stated that collaborating between two professionals can take the form of assessing a misunderstanding to learn from one another's perceptions or attempting to seek an innovative solution to interpersonal issues. While Deep, Gajendran and Jefferies [33] emphasise that collaboration is indisputably a vital measure to improve the efficiency, as well as the performance, of the construction industry.

2.10. Obliging

Obliging as a method of settling conflict demonstrates little concern for the self and huge concern for other CPs that conveys the ability to satisfy the aspirations of the other experts [34]. According to Anh et al. [35], obliging approach is used when individual professionals demonstrate self-commitment behaviour by evading their requirements for the other group, habitually leading to lose-win outcomes. However, the obliging method is not appropriate for resolving challenges among CPs industry bodies. Saidu [36] opined that obliging style is utmost utilised where a professional offers something of value to other professionals in exchange for something in the future when he/she requires assistance.

2.11. Dominating

Conflict can be settled through dominating, which is where CPs give more consideration to personal concerns than to concerns that are common to the professional bodies. The CPs with the better position may influence the lower rank expert individuals to agree to their choices. Chou and Yeh [37] affirm that the two choices pondered in this method are superior interest in the personal and little interest in other members. Kassim and Ibrahim [38] concur that dominating is among the key approaches to settling controversy. They define dominating as a technique that contains great interest for the self and little interest for the contradictory experts.

2.12. Compromising

This style demonstrates a slight concern for self as well as others [39]. Lim and Yazdanifard [40] additionally asserted that compromising consists of a bargaining circumstance in which both professionals surrender to something after diplomacy in order to achieve a consensus. Furthermore, Iiban [41] discussed that compromising has its emphasis in both one's personal concerns and the concerns of others. Compromising comprises of a give-and-take condition in which professionals will surrender to something after resolution so as to reach a consensus. In Ghana, Rahim [42] additionally recognized compromising as a means of settling conflict. Although, Rahim [42] also emphasised that the compromising approach is not appropriate for managing complicated difficulties that necessitate issue resolution. However, several experts still utilize it, and it leads to terrible outcomes for them. Larasati and Raharja [43] emphasised that compromising is a style that plans to sacrifice interests in getting agreements to achieve an agreement.

2.13. Confronting

The resolution of conflict can be achieved through confronting. According to Thakore (2013), the confronting approach implies a robust collaborative and self-assured behaviours. Confronting is considered as a win-triumph technique in interpersonal handling of controversy. CPs utilising confronting desire to make the best out of a collaborative result.

Furthermore, Osabiya [44] opined that confrontation strategy is at the other end of the continuum from avoidance approach, whereby all challenges are brought into public and conflicting professionals directly approach the situation in order to achieve a jointly agreeable resolution. However, any individual expert that utilises the approach is accountable to understand conflict as usual, polite, and essential to an additional imaginative resolution if managed.

3. Research Methodology

A quantitative approach was applied in this study to explore ways of settling conflict among Nigerian CPs. A descriptive as well as exploratory factor analysis (EFA) was utilised for this study. This investigation was performed in Southwestern Nigeria. The study populations consist of CPs. Moreover, a sampling method was utilised in this study. Latham et al. [45] (p. 7) noted that sampling means the approach of choosing a unique portion of a sample for determining characteristics of the whole population. The two classes of sampling approach are probability and purposive random sampling [46]. Because random sampling offers all participants the prospect of being picked for the research with equivalent standards, the research utilized this approach. This study utilized a purposive random sampling. Pertaining to this study, a sum of 150 questionnaires were sent to the participants and 135 were sent back, which signifies a 90% reaction rate.

Furthermore, the mean item score (MIS) was applied to reveal the outcomes for Likert inquiries pertaining to this research. According to Manikandan [47], mean is the most usually utilised measure of central tendency. The MIS was computed from all weighted feedback on a certain area. It was based on the perception that respondents score on entire chosen standards deemed collectively to be the analytically agreed indicators of comparative significance. The MIS index is the overall partakers' actual scores (applying a 5-point Likert scale) indicated by each respondent as a fraction of the entirety of each of the greater probable results on the Likert scale which each of the respondents could add to that criterion. While standard deviation, according to Andrade [48], is a descriptive statistic that computes the spread of numbers across the sample mean; the standard deviation explains the sample.

Moreover, the ensuing section of the analysis was exploratory factor analysis (EFA). Watkins [49] describes EFA as a member of multivariate statistical techniques that endeavor to recognize the least value of hypothetical constructs or factors that can prudently describe the covariation perceived among a group of variables. EFA was carried out to obtain data regarding the one-dimensionality of the variables so as to produce their factor assessment [50]. EFA was performed using SPSS version 21.

In EFA, the KMO examines the variance proportions among all the variables [51]. According to Arsham and Lovric [52], the Bartlett's test is an inferential statistic utilized to evaluate the fairness of variance in various samples. After the EFA was carried out, the normality test was performed. Ghasemi and Zahediasl [53] emphasized that normality tests are supplementary to the graphical evaluation of normality. Moreover, the sample size affronts a research outcome whereby the outcomes of lesser samples contain very slight arithmetic power for the analysis to accurately realize significant outcomes [54]. They might additionally be simply over correct to the research data that they suit the sample properly without over simplifying. Sample sizes larger than 200–400 participants can cause difficulties in ensuring that the statistical tests are not excessively sensitive due to the larger statistical impact of the sample size (Hair et al. [54] which might sustain non-normality. Therefore, the sample size used in this research was small and the information accumulated was computed for normality so as to verify its appropriateness using standard multivariate assessment.

4. Findings and Discussions

4.1. Results from Descriptive Analysis

4.1.1. Demographic Information of Respondents

Respondents' Profession

Figure 1 shows the respondents' professions. It was demonstrated that quantity surveyor was the most common profession (24.4%). Second place was civil engineer with 17.8%; third was builder (17.0%); fourth was architect (14.8%), fifth most common were project managers (13.3%) and in sixth place were construction managers (12.6%).

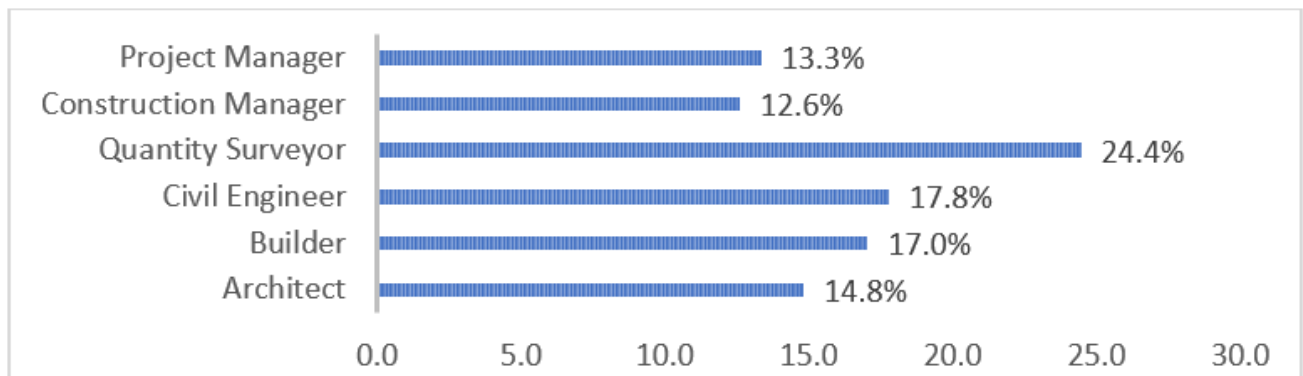


Figure 1. Respondent's professions.

Respondents' Age Group

Figure 2 shows the age group of respondents. It shows that 19.3% of the respondent population were aged 51–55 years, 17.0% were aged 46–50, 14.1% were aged 41–45, 13.3% were aged 26 to 30, 12.6% were 56 or over, 9.6% were aged 31 to 35, 7.4% of the partakers were aged between 36 and 40 and 6.7% were aged 21 to 25.

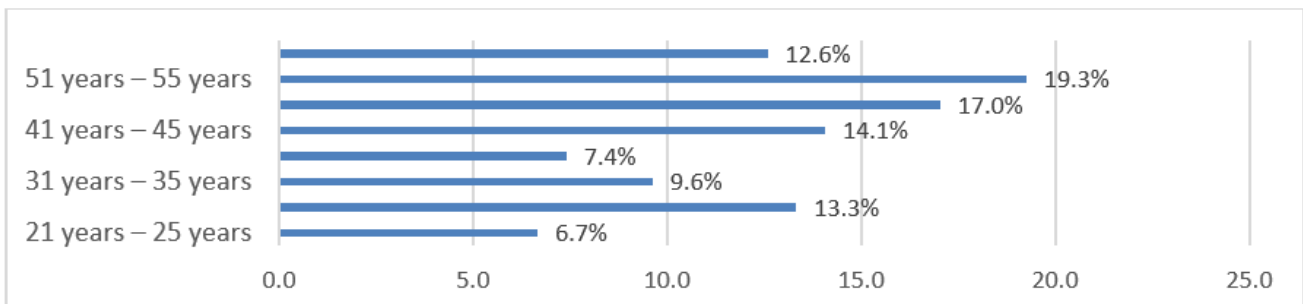


Figure 2. Respondent's age groups.

Respondents' Years of Experience

In Figure 3, the respondents' years of experience in the construction industry is displayed. It was discovered that 31.9% of the partakers had 11–15 yrs. 31.9% had 20 years or more, 20.0% had 1–5 years and 16.3% had 6–10 years.

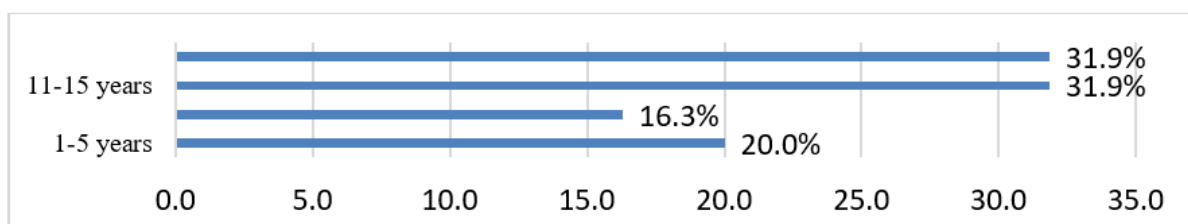


Figure 3. Respondents' years of experience.

Respondent's Educational Qualifications

Figure 4 shows the respondents qualifications. It shows that 39.3% had a master's degree, 33.3% had a bachelor's degree, 20.7% had an HND, 3.7% had a doctorate and 3.0% had an OND.

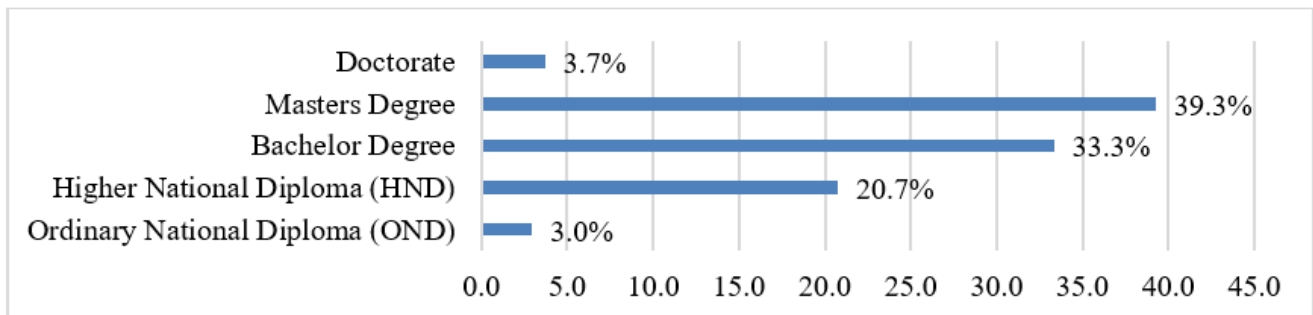


Figure 4. Respondents' educational qualifications.

Table 1 shows the MIS from the maximum to the smallest concerning the ways of settling conflicts amongst Nigerian CPs. According to the respondents, "collaborating" was positioned first ($M = 4.13$; $SD = 0.973$); "accommodating" emerged second ($M = 3.93$; $SD = 1.087$); "negotiating" was also ranked second ($M = 3.93$; $SD = 1.005$); "compromising" was positioned fourth ($M = 3.72$; $SD = 1.386$); "mediating" was fifth ($M = 3.63$; $SD = 0.826$); "arbitrating" was sixth ($M = 3.60$; $SD = 0.924$). Additionally, "mediating-arbitrating" was positioned seventh ($M = 3.39$; $SD = 0.946$) as was "contending" ($M = 3.39$; $SD = 1.044$); "obliging", emerged ninth ($M = 3.35$; $SD = 0.964$); "early neutral evaluating" was positioned tenth ($M = 3.34$; $SD = 0.932$); "confronting", was rated eleventh ($M = 3.24$; $SD = 0.971$); "avoiding" was twelfth ($M = 3.16$; $SD = 1.073$) and "dominating" was thirteenth ($M = 3.10$; $SD = 1.205$).

Table 1. Methods of resolving conflict among construction professionals.

	Mean (\bar{x})	Std. Deviation (σ_X)	Rank (R)
Collaborating	4.13	0.973	1
Negotiating	3.93	1.005	2
Accommodating	3.93	1.087	2
Compromising	3.72	1.386	4
Mediating	3.63	0.826	5
Arbitrating	3.60	0.924	6
Mediating-arbitrating	3.39	0.946	7
Contending	3.39	1.044	7
Obliging	3.35	0.964	9
Early neutral evaluating	3.34	0.932	10
Confronting	3.24	0.971	11
Avoiding	3.16	1.073	12
Dominating	3.10	1.205	13

From Table 1, the results revealed that collaborating emerged as the most commonly utilized method of settling conflict. Tsuma and Ndlovu [28] agreed that collaborating is among the major approaches to settling disputes and entails extreme audacity and considerable interest. Also, collaborating is a style of settling controversy whereby an expert endeavours to operate jointly with other members. The advantage of embracing this collaborating technique is to guarantee that all CPs are contented [31]. Due to all CPs being contented with the ultimate choice, more time and effort is needed compared to other means of settling conflict. Additionally, John-Eke and Akintokunbo [29] agreed that collaborating is among the main approaches of settling conflict. They opined that

collaborating techniques are intended to satisfy the necessities of conflicting individuals when the members have jointly significant ambitions. Drakulevski, Nakov and Taneva-Veshoska [32] stated that collaborating between two professionals can take the form of assessing a misunderstanding to learn from one another's perceptions or trying to seek an innovative solution to interpersonal issues. The discoveries of this research likewise exhibited four additional prevalent methods of CR, such as accommodating, negotiating, compromising and mediating-arbitration. Moreover, Khan et al. [14] agreed that accommodation is among the most common techniques utilised in resolving conflict since CPs are more expected to adapt to the existing situation with no opposition so as to settle the matter. While Alimba and Abu [15] likewise agreed that the accommodating method comprises a situation whereby an individual ignores his/her personal interest to satisfy the interest of others. CPs that use this strategy give in to demands, even irrational ones, in order to avoid misunderstanding. Maureen et al. [16] also agreed that accommodating is among the main methods of resolving conflict. They emphasised that accommodating involves reducing to the bare minimum any diversities, whether observed or real, while concentrating attention on the other professional opinions regarding the same circumstance. Likewise, Iiban (2008) agreed that compromising is one of the key approaches to settling conflict. The study conducted by Liban [41] further highlighted that compromising possesses its concentration in individual self and others' concerns. Compromising comprises a mutual agreement condition in which CPs will give up something after conciliation in order to achieve a consensus between the professional bodies. Furthermore, Anyawu et al. [20] agreed that mediation is among the main methods of settling conflict and it concerns an individual process whereby an impartial third party helps other individuals to assess a difficult situation and come to an agreement between them. Likewise, Ojo and Folayan [22] emphasised and agreed that mediation is based on the involvement of a third, unbiased individual that helps individuals to arrive at an agreeable settlement. While Heather [23] indicated that mediation had emerged previously as an effective method of conflict resolution which is initiated by "relationship-based conflict".

4.2. Results from the Exploratory Factor Analysis

From Table 2, the KMO measure of sampling appropriateness achieved a number of 0.876. This is beyond the highest number of 0.6. This is suitable to continuing to EFA as any number more than 0.6 is specified suitable [55]. The Barlett's test was also statistically substantial (<0.05).

Table 2. KMO and Bartlett's test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.876
Bartlett's Test of Sphericity	Approx. Chi-Square	938.377
	Df	78
	Sig.	0.000

Table 3 exhibits the communalities table. In the communalities table, every item after removal must comprise a number greater than 0.3. Providentially, the numbers as recognized from Table 3 all comprise numbers higher than 0.3.

The total variance explained in Table 4 reveals several methods of resolving conflict and their specific eigenvalues. The Kaiser's criterion of remaining factors with eigenvalues higher than 1.0 was utilised. Consequently, two cluster variables with eigenvalues higher than 1.0 were reserved. The ultimate figures of the removed factors as well as PCA were responsible for roughly 52% of the total cumulative variance.

Table 3. Communalities.

	Initial	Extraction
MRC1 Avoiding	0.413	0.371
MRC2 Contending	0.592	0.587
MRC3 Accommodating	0.560	0.451
MRC4 Negotiating	0.522	0.518
MRC5 Mediating	0.596	0.650
MRC6 Arbitrating	0.513	0.516
MRC7 Mediating-arbitrating	0.551	0.492
MRC8 Early neutral evaluating	0.400	0.391
MRC9 Obliging	0.611	0.538
MRC10 Dominating	0.545	0.610
MRC11 Compromising	0.694	0.646
MRC12 Collaborating	0.694	0.658
MRC13 Confronting	0.543	0.497

Extraction Method: Principal Axis Factoring.

Table 4. Total variance explained.

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.398	49.214	49.214	5.940	45.695	45.695	5.077
2	1.326	10.201	59.414	0.883	6.789	52.484	5.015
3	0.870	6.689	66.103				
4	0.834	6.415	72.518				
5	0.655	5.035	77.553				
6	0.602	4.630	82.183				
7	0.513	3.949	86.132				
8	0.429	3.303	89.434				
9	0.380	2.926	92.360				
10	0.339	2.610	94.970				
11	0.255	1.959	96.928				
12	0.227	1.744	98.673				
13	0.173	1.327	100.000				

Extraction Method: Principal Axis Factoring.

The scree plot in Figure 5 demonstrates an interruption following the second factor. The steep slope exhibits a huge element in which the steady trailing off displays the remaining of the variables that possess an eigenvalue less than one.

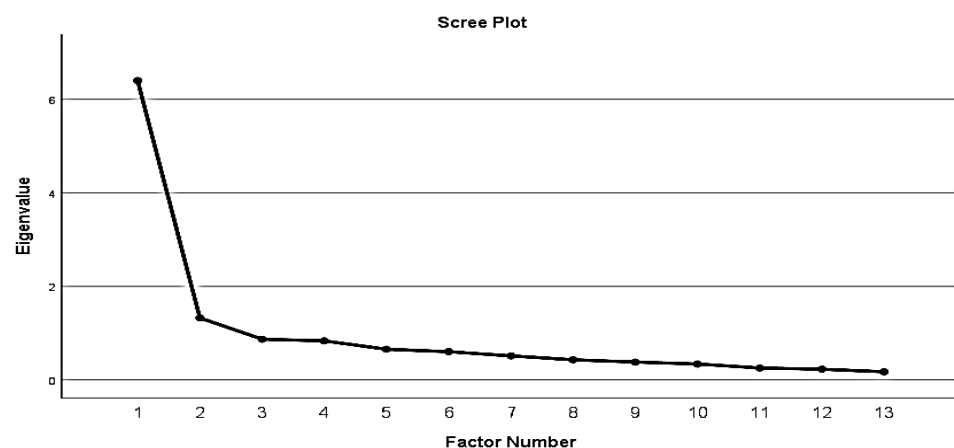
**Figure 5.** Respondents' professions.

Table 5 demonstrates the pattern matrix that reveals the variable loadings of all the items. The uppermost loading items on factors one and two are revealed.

Table 5. Pattern matrix ^a.

	Factor	
	1	2
MRC5 Mediating	0.850	
MRC6 Arbitrating	0.735	
MRC4 Negotiating	0.669	
MRC8 Early neutral evaluating	0.647	
MRC7 Mediating-arbitrating	0.641	
MRC9 Obliging	0.472	
MRC1 Avoiding	0.328	
MRC10 Dominating		0.882
MRC2 Contending		0.756
MRC11 Compromising		0.715
MRC13 Confronting		0.649
MRC12 Collaborating		0.550
MRC3 Accommodating		0.473
Extraction Method: Principal Axis Factoring.		
Rotation Method: Oblimin with Kaiser Normalization.		

^a. Rotation converged in 10 iterations.

In Table 6, factor 1 of techniques of CR had 0.836, while factor 2 had 0.776.

Table 6. Cronbach's alpha.

	Factor 1		Factor 2	
	Cronbach's Alpha	No. of items	Cronbach's Alpha	No. of items
Methods of resolving conflict among construction professionals	0.836	7	0.776	6

Table 7 displays that the normality test for the factor mediating techniques indicates that the *p*-value was lower than 0.05 as shown in the table above. The null hypothesis (H_0) is rejected and the hypothesis (H_1) is accepted. Consequently, it is not evenly distributed.

Table 7. Normality Tests for the factors.

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistics	Df	<i>p</i> -Value	Statistic	df	<i>p</i> -Value
MRC_F1	Mediating techniques	0.261	135	0.000			
MRC_F2	Confronting techniques	0.194	135	0.000			

^a. Lilliefors Significance Correction.

Conclusion: The null hypothesis was rejected (H_0). This specifies that there is a difference between the variables that formed the factor for 'mediating techniques'.

The normality test for the factor 'dominating techniques' implies that the *p*-value was lower than 0.05 as shown in the table above. The null hypothesis (H_0) is rejected, and hypothesis (H_1) is accepted. Consequently, it is not evenly distributed.

Conclusion: The null hypothesis was rejected (H_0). This specifies that there is a difference between the variables that formed the factor for 'dominating techniques'.

Two components were emerged with eigenvalues larger than one as indicated in Table 4. Due to watchful examination of the inherent relationship between the variables in every factor, the subsequent evaluation was made. Factor 1 was termed as **mediating techniques** and factor 2 was termed as **dominating techniques**. The terms used in describing

the factors were obtained as a result of closely observing variables within each of the factors. The two factors retained, and their constituent indicators are explained below, together with a comprehensive description on how to describe the two factor sections. Also, two factors were preserved, and their component indicators are described underneath, jointly with an all-inclusive explanation.

5. Factor 1: Mediating Techniques

As shown in Table 5, seven variables were in factor 1. The factor was termed 'mediating techniques' due to integration of the variables. This factor consists of mediating, arbitrating, negotiating, early neutral evaluating, mediating-arbitrating, obliging and avoiding, with a total variance of 45.695%. Though, as observed in the discoveries, five loading variables in factor 1 (mediating techniques) surpass 0.60, which shows a robust connection happens amongst the items.

The findings demonstrate some substantial approaches to resolving conflict which are called mediating techniques. The approaches consist of mediating, arbitrating, negotiating and early neutral evaluating. Cheng and Yiu [21] agreed mediation is among the main ways of settling conflict. Likewise, Heather (2016) revealed that mediation already emerged in the preceding years as a vigorous way of settling conflict. Gulghane and Khandve [25] also agreed that arbitration is among the key techniques of settling conflict. They described arbitration as a means of settling conflict and it is consequently important that for arbitration to persist, the CPs should agree to denote individual disagreement to settlement. Likewise, Cleary (17) opined that negotiation is the procedure whereby professionals resolve diversities as well as issues between themselves. The interaction is straightforward and formal amongst the CPs in Nigeria that are encouraged to achieve a consensus for mutual advantage.

6. Factor 2: Dominating Techniques

An overall of six variables were in factor 2, as demonstrated in Table 5. The factor was termed 'dominating techniques' due to the relationship amongst the variables. The factor consists of dominating, contending, compromising, confronting, collaborating, and accommodating, with a total variance of 6.789%. However, four variables in factor 2 (confronting techniques) go beyond 0.60, which reveals a robust connection happens among them.

The findings of the outcomes demonstrate approaches for confronting approaches in settling conflict among CPs. Dominating was loaded greater as a means of settling conflict. Kassim and Ibrahim [38] agreed that dominating is among the vital ways of settling conflict. They depict dominating as a technique that includes great interest for the self and small interest for the other contradictor CPs. Moreover, Jeong [11] agreed and asserts that a contending style of resolving conflict concentrates on attaining a setback and conquering other experts by means of attempting to demonstrate how inaccurate they are. According to Copley [12], the contending approach has great interest for the individual self, that is deliberated with a need to utilize personal accomplishment, even to the detriment of others. The approach is dissimilar from the collaborating technique that guarantees conflict settling to fulfil the aspirations of each expert engaged. Likewise, Lim and Yazdanifard [40] agreed that compromising is among the major notable ways of settling conflict. They further asserted that compromising includes a deal situation in which both CPs will surrender something subsequent to the diplomacy so as to attain a consensus.

7. Limitations for the Study

The theoretical evaluation is consistent with the research empirical outcomes. The feedback corresponds with the literature on conflict resolution methods. From the results it was disclosed that collaborating is the highest commonly utilized approach in settling conflict amongst CPs in professional bodies. This implies that there is a necessity for CPs to work cooperatively and share ideas so as to settle disagreement among themselves.

The utilization of collaboration in settling conflict will certainly improve Nigerian CPs' effectiveness in their individual professional organizations, since when CPs collaborate, it would be hard for conflict to happen among them.

8. Conclusions and Recommendation

This paper has examined the ways of resolving conflict among CPs in Nigeria. Results from the survey signify several leading ways of settling conflict amongst CPs in Nigeria which involve collaborating, accommodating, negotiating, and compromising. The collaborating among CPs in the construction industry is a notable approach of resolving conflict, whereby experts endeavour to operate jointly with other members. Collaborating helps to guarantee all CPs are contented applying the unquestionable decision or choice. Additionally, accommodating is revealed as among the most common techniques utilised in resolving conflict since CPs are more expected to adapt to the existing situation with no opposition so as to settle the arising issue. Moreover, the outcomes gotten through the EFA likewise revealed the greatest significant means of settling conflict among Nigerian CPs as mediating, arbitrating, and negotiating. Hence, this study has impacted on the body of knowledge enormously through a comprehensive exploration of conflict resolution methods among the CPs which has been ignored in past studies. Additionally, this study has made use of exploratory factor analysis (EFA) which has not been used in analysing ways of settling conflict in the previous literature. The outcomes from this research will enhance the knowledge of CPs in Nigeria on different methods of resolving methods. However, this study suggested that CPs should guarantee sufficient use of key techniques in resolving conflict with others. This study also suggests that Nigerian CPS should be collaborating with one another, so as to solidify their relationship and also enhance their performance in their professional bodies.

9. Recommendation for Further Study

- Further studies can assess impacts of accommodating in resolving conflict among Nigerian construction professionals;
- Further studies can utilise other analysis techniques to assess conflict resolution techniques among the CPs in the Nigerian professional bodies;
- Further studies can assess the relationship between various methods of settling conflict in the CI.

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References

1. Stickley, D.C. Project management and dispute resolution in the international petroleum industry. In *Proceedings of the CEPMLP*; University of Dundee: Dundee, UK, 2002.
2. Alam, M.J.; Arora, G.S.; Gupta, V.K. Impact of managing Conflict on Team member. *J. Crit. Rev.* **2020**, *7*, 1235–1239.
3. Mills, B.R.; Mene, C.T. Conflict and Its Management in an Organisation: A Theoretical Review. *Int. J. Sci. Res. Publ.* **2020**, *10*, 540–545.
4. Stanslaus, K.N. *Conflicts in Building Projects in Tanzania: Analysis of Causes and Management Approaches*; Building and Real Estate Economics, Department of Real Estate and Construction Management, Royal Institute of Technology (KTH): Stockholm, Sweden, 2011.

5. Zhang, S.J.; Chen, Y.Q.; Sun, H. Emotional intelligence, conflict management styles, and innovation performance. *Int. J. Confl. Manag.* **2015**, *26*, 450–478. [\[CrossRef\]](#)
6. Ogunbayo, O.M. Project Managers Conflict Management Styles and Its Impacts on Project Team Motivation in Nigeria Construction Industry. *Int. J. Sci. Eng. Res.* **2013**, *4*, 2248–2257.
7. Aktar, N.; Hassan, S.S. Conflict Management Styles as Predictors of Organisational Commitment in University Teachers. *J. Behav. Sci.* **2021**, *31*, 99–123.
8. Vesperi, W.; Ventura, M.; Cristofaro, C.L. Conflict Management as an Organizational Capacity: Survey of hospital managers in health care organisations. *Meas. Bus. Excell.* **2020**, *25*, 390–406. [\[CrossRef\]](#)
9. Thakore, D. Conflict and conflict management. *IOSR J. Bus. Manag. IOSR-JBM* **2013**, *8*, 7–16. [\[CrossRef\]](#)
10. Tabassi, A.A.; Abdulahh, A.; Bryde, D.J. Conflict Management, Team Coordination, and Performance within Multicultural Temporary Projects; Evidence from the Construction Industry. *Proj. Manag. J.* **2019**, *50*, 101–114. [\[CrossRef\]](#)
11. Jeong, H. *Understanding Conflict and Conflict Analysis*; Sage: Newcastle upon Tyne, UK, 2008; pp. 1–245.
12. Copley, R.D. Conflict Management Styles: A Predictor Likeability and Perceived Effectiveness among Subordinates. Master's Thesis, Indiana University, Bloomington, IN, USA, 2008; pp. 1–66.
13. Helms, W.S.; Oliver, C. And its implications for institutional change. *J. Manag. Organ.* **2015**, *21*, 471–494. [\[CrossRef\]](#)
14. Khan, K.; Hussainy, S.K.; Igbai, Y. Causes, effects, and remedies in conflict management. *South East Asian J. Manag.* **2016**, *10*, 152–172. [\[CrossRef\]](#)
15. Alimba, C.N.; Abu, P.B. A correlation study on conflict management styles on teachers productivity in public secondary schools in Nigeria. *Afr. Res. Rev.* **2018**, *12*, 77–88. [\[CrossRef\]](#)
16. Maureen, M.M.; Maore, S.; Were, E. Conflict Management Strategies and Organisation Performance (A survey of Micro finance Institutions in Nairobi). *IOSR J. Bus. Manag. IOSR-JBM* **2021**, *23*, 14–29.
17. Cleary, M.; Lees, D.H.; Sayers, J.M. The Art of Negotiation. *Issues Ment. Health Nurs.* **2018**, *39*, 910–912. [\[CrossRef\]](#) [\[PubMed\]](#)
18. Chan, E.H.; Suen, H.C. Dispute resolution management for international construction projects in China. *Manag. Decis.* **2005**, *43*, 589–602. [\[CrossRef\]](#)
19. Chikwe, A. Learn when Negotiating Behaviours is Dynamic Pilot University Lecturers Skill Enhancement. *Train* **2011**, *2*, 11–12.
20. Anyawu, C.I. The role of building construction project team members in building projects delivery. *J. Bus. Manag.* **2013**, *14*, 30–34.
21. Cheung, S.O.; Yiu, K.T.W. A study of construction mediator tactics—Part I: Taxonomies of dispute sources, mediator tactics and mediation outcomes. *Build. Environ.* **2007**, *42*, 752–761. [\[CrossRef\]](#)
22. Ojo, F.Y.; Folayan, T.A. Application of Conflict Management Methods among Couples in Nigeria: Alternative Dispute Resolution Approach. *Int. J. Innov. Res. Adv. Stud. IJIRAS* **2017**, *4*, 8–13.
23. Heather, M.D. To Investigate the Types and Effectiveness of Conflict Management Practices in Use by Irish Employers. Master's Thesis, National College of Ireland, Dublin, Ireland, 2016.
24. Teague, P.; Roche, W.K. Line managers and the management of workplace conflict: Evidence from Ireland. *Hum. Resour. Manag. J.* **2012**, *22*, 235–251. [\[CrossRef\]](#)
25. Gulghane, A.A.; Khandve, P.V. Arbitration in construction industry: An overview. *Int. J. Mod. Eng. Res. IJMER* **2015**, *5*, 1–4.
26. Mboya, A.A.; Kiplagat, P.; Ernest, Y. Collaboration Conflict Management Strategy: A Solution to Secondary Schools Unrests in Kenya. *Int. J. Trend Res. Dev.* **2017**, *3*, 203–207.
27. Crystal, T. *Conflict Management Styles*; University of Maryland Extension; National Ag Risk Library: Atchison, KS, USA, 2007.
28. Tshuma, R.; Ndlovu, S.; Bhebhe, S. Strategies of resolving conflict among school personnel in urban and peri-urban secondary schools in gwanda district, Zimbabwe. *IOSR J. Humanit. Soc. Sci. IOSR-JHSS* **2016**, *21*, 82–90.
29. John-Eke, E.C.; Akintokunbo, O.O. Conflict Management as a Tool for Increasing Organisational Effectiveness: A Review of Literature. *Int. J. Acad. Res.* **2020**, *10*, 299–311.
30. Ani, R.; Annika, T. Unmasking Conflict in vertical coopetition. *J. Bus. Ind. Mark.* **2021**, *36*, 78–90.
31. Montoya-Weiss, M.M.; Messey, A.P.; Song, M. Getting it together: Temporal coordination and conflict management in global virtual teams. *Acad. Manag. J.* **2001**, *44*, 1251–1262.
32. Drakulevski, L.; Nakov, L.; Taneva-Veshoska, A. Conflict management styles among managers in Macedonian organizations. *J. Corp. Gov. Insur. Risk Manag.* **2020**, *1*, 146–156.
33. Deep, S.; Garjendran, T.; Jefferies, M. Factors Influencing Power and Dependence Collaborations among Construction Project Participants. *J. Leg. Aff. Disput. Resolut. Eng. Constr.* **2020**, *12*, 06520001. [\[CrossRef\]](#)
34. Lee, K.L. An examination between the relationships of conflict management styles and employees satisfaction. *Int. J. Bus. Manag.* **2008**, *3*, 11–25. [\[CrossRef\]](#)
35. Anh, T.T.; Thi, S.T.; Kieu, O.N.; Van, T.H.; Kim, P.T. Applying Conflict Management Styles to Resolve Task Conflict and Enhance Team Innovation. *Emerg. Sci. J.* **2021**, *5*, 667–677.
36. Saidu, S. Effect of Conflict Management Styles on Employees Performance in Selected Institutions of Higher Learning in Adamawa State, Nigeria. *Int. J. Res. Innov. Soc. Sci. IJRISS* **2021**, *5*, 672–678.
37. Chou, H.W.; Yeh, Y.J. Conflict, conflict management and performance in ERP teams. *Soc. Behav. Personal.* **2007**, *35*, 1035–1048. [\[CrossRef\]](#)
38. Kassim, M.A.M.; Ibrahim, I.H. Conflict management styles and organizational commitment: A study among bank employees in Penang. *Int. J. Bus. Econ. Law* **2014**, *4*, 45–53.

39. Surnayo, N.; Ratri, I.K. The Influence of Emotional Intelligence on Employee Performance Mediated By Cooperative Conflict Management Styl of Integrating and Compromising. *J. Appl. Manag. JAM* **2018**, *17*, 37–47.
40. Lim, J.H.; Yazdanifard, R. The difference of conflict management styles and conflict resolution in workplace. *Bus. Entrep. J.* **2012**, *1*, 141–155.
41. Ilban, T.; Giritli, H. Cultural aspects of conflict management in international construction. In Proceedings of the International Conference on Multi-National Construction Projects “Securing high Performance through Cultural awareness and Dispute Avoidance”, Shanghai, China, 21–23 November 2008.
42. Rahim, M. Towards of theory of managing organizaional conflict. *Int. J. Confl. Manag.* **2002**, *13*, 206–235. [[CrossRef](#)]
43. Larasati, R.; Raharja, S. Conflict Management in Improving Schools Effectiveness. In Proceedings of the 3rd International Conference on Learning Innovation and Aulity Education (ICLIQE 2019), Surakarta, Indonesia, 7 September 2019; Volume 397, pp. 191–197.
44. OsabiyA, B.J. Conflict Management and Resolution in Nigeria Public Sector. *Rev. Public Adm. Manag.* **2015**, *4*, 107–120.
45. Latham, G.; Sulsky, L.M.; Macdonald, H. *Performance Management. Oxford Handbook Human Resource Management*; Oxford University Press: Oxford, UK, 2007.
46. Teddlie, C.; Yu, F. Mixed method sampling: A typology with examples. *J. Mix. Methods Res.* **2007**, *1*, 77–100. [[CrossRef](#)]
47. Manikandan, S. Measure of central tendency: The mean. *J. Pharmacol. Pharmacother.* **2011**, *2*, 140–142. [[PubMed](#)]
48. Andrade, C. Understanding the difference between standard deviation and standard error of the mean and knowing when to use which. *Indian J. Psychol. Med.* **2020**, *42*, 409–410. [[CrossRef](#)]
49. Watkins, M.W. Exploratory Factors Analysis: A Guide to Best Practice. *J. Black Psychol.* **2019**, *44*, 219–246. [[CrossRef](#)]
50. Pallant, J. *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*; Routledge: Maidenhead, UK, 2010.
51. Reddy, S.; Kulshrestha, P. Performing the KMO and Bartlett’s Test for Factors Estimating the the Warehouse Efficiency, Inventory and Customer Contentment for E-retail Supply Xhain. *Int. J. Res. Eng. Appl. Manag. IJREAM* **2019**, *5*, 1–13.
52. Arsham, H.; Lovric, M. *Bartlett’s Test. International Encyclopaedia of Statistical Science*; Springer: Berlin/Heidelberg, Germany, 2011; pp. 1–3.
53. Ghasemi, A.; Zahediasl, S. Normality Tests for Statistical Analysis: A Guide for Non- Statisticians. *Int. J. Endocrinol. Metab.* **2012**, *10*, 486–489. [[CrossRef](#)] [[PubMed](#)]
54. Hair, J.F.; Anderson, R.E.; Tatham, R.L.; Black, W.C. *Multivariate Data Analysis*, 5th ed.; Prentice Hall International: New York, NY, USA, 1998.
55. Eiselen, R.; Uys, T.; Potigier, T. *Analysing Survey Data Using SPSS13*, 3rd ed.; a Workbook; University of Johannesburg: Johannesburg, South Africa, 2005.