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Cultural Intelligence and Diversity Tolerance among Students in Public Universities: The Mediating Effect of Cross-Group Friendship, with Evidence from Ambo University

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Abstract

The study was aimed to assess the relationship between cultural intelligence and diversity tolerance among public university students, with a focus on the mediating role of cross-group friendships. Despite the significance of cultural competence in pluralistic societies like Ethiopia, empirical evidence on these domains remains limited, specifically in Ethiopian universities that sporadically experience ethnic-based tensions. This study was guided by cross sectional quantitative design and involved a sample of 319 regular undergraduate students enrolled at Ambo University. The participants were selected using stratified random sampling and completed validated tools assessing CQ, DT, and CGF. Data were analyzed using SPSS 23, with AMOS program. Thus the confirmatory factor analysis was conducted using AMOS and Hayes' PROCESS macro (model 4.2) was employed for mediation analysis. The analysis indicated that 62.4% of participants scored high in overall CQ, with motivational (63%) and behavioral (63.6%) dimensions scoring highest, while metacognitive CQ (49.3%) was relatively weaker. The study also found significant positive correlations between CQ and DT (r = .823), CQ and CGF (r = .655), and CGF and DT (r = .793). The mediation analysis revealed that CGF partially mediated the link between CQ and DT (indirect effect: β = 0.14, 95% CI [0.11, 0.18]), accounting for 35.49% of the total effect. These finding highlight the double paths through which CQ promotes DT: directly through cognitive-affective processes and indirectly by fostering meaningful intergroup relation. The study emphasized the need to implement targeted interventions by Universities, such as structured cross cultural training, reflective exercises, and policies promoting cross-ethnic connections, in order to strengthen social cohesion.

Keywords: *cultural intelligence, diversity tolerance, cross-group friendship, Ethiopia, public Universities,*

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Background to the Study

In an era of heightened multiculturalism, promoting diversity tolerance within higher education institutions has become both a necessity and challenge. Higher learning institutions, especially those in multiethnic societies, have the potential to promote intercultural understanding and cooperation (Hurtado, 2005).

Higher learning institutions in Ethiopia as a miniature of the broader national ethno linguistic diversity symbolize both the opportunity and challenges of intercultural engagement. Students come together from diverse ethno-linguistic, religious and cultural backgrounds; get rich opportunity for intergroup contact where they learn from one another, as well as appreciate diversity (Amsalu and Mesfin, 2023; Teshome, 2021). Within campus spaces; classrooms, dormitories, dining halls, and student organizations, students engage in interactions that can dismantle prejudices, promote shared identities, and foster lasting cross-cultural friendships. Indeed, universities can serve as incubators for national unity by equipping future leaders with the competencies needed to manage diversity and build cohesive societies (Amsalu & Mesifin, 2023). These institutions play a pivotal role in shaping a generation of graduates who not only understand the significance of cultural diversity but are also equipped to contribute to national unity and cohesion (Amsalu & Mesifin, 2023).

However, this potential is often undermined by recurring interethnic tensions and conflicts. (Ashine, 2019; Bezabih, 2019; Zekaryas, 2020). Despite their potential to promote cross-cultural learning, Ethiopian universities sporadically reflect broader societal tensions marked by ethno- political divisions and mutual distrust. In this sense, Ethiopia's universities also mirror the country's broader socio-political landscape, characterized by deep-rooted ethnic plurality and, at times, fragmentation. A study by Amsalu and Mesifin (2023), which assessed ethnocentrism among Ethiopian university students from 1995 to 2018, concluded that ethnicity has permeated university campuses and affected relationships among students of different ethnic groups.

Over the past decade, for example, multiple Ethiopian universities have experienced serious interethnic hostilities, ranging from verbal confrontations and hate speech to physical violence. According to the Center for Advancement of Rights and Democracy (CARD, 2020), these incidents have resulted in casualties, property destruction, and widespread disruption of

academic activities (Abera, 2010; Bezabih, 2019; Missaye, 2014; Yadessa, 2018). Similarly, Mehammed (2021) and Missaye (2014) observed that Ethiopian public university students express their stereotypes and hatred towards other ethnic groups through graffiti. The persistence of such conflicts has transformed some campuses into sites of fear and division, rather than safe havens for intellectual growth and cross-cultural interaction (Alemayehu, 2008). According to a recent report by CARD, which compiled instances of conflicts that happened in various public universities in 2020 alone, 28 public universities have experienced minor and severe conflicts which cost the lives of 12 students, and minor and major bodily damage on many others (2020). Epitomizing this finding, a statement from the Ministry of Science and Higher Education (MoSHE) in January 2020 noted that around 35000 government university students have left their universities in 22 campuses across the country due to fear of ethnic based conflict (ETV, 16 Jan, 2020; Divdiscourse).

The absence of institutional frameworks to promote unity among Ethiopian university students was explicitly documented in the Ethiopian education roadmap. In the section "unity in diversity in higher education", the document stated that, following the adoption of the 1995 constitution, Ethiopia endorsed a federal system that recognizes unity in diversity and guarantees the political, cultural, and linguistic rights of nations, nationalities, and peoples. However, despite universities' efforts to promote diversity, none have implemented structured activities to foster unity among students (MoE, 2018). The document further recommends establishing a university senate standing committee to oversee the implementation of policies related to unity in diversity (MoE, 2018).

The shared views among researchers in this area are those tensions and actual conflicts among students of Ethiopian public universities were based on ethnic lines (Amsalu & Mesifin, 2023; Ashine, 2019; Bazezew & Neka, 2017; Tilahun, 2007). Bazezew and Neka (2017), for example, found that nearly 97% of interpersonal conflicts among students of Bahirdar University are caused by ethnicity. An almost equivalent figure was reported by Tilahun (2007), who contends that ethnicity is the major cause (80%) for intergroup conflict among university students. Further scrutiny of this issue shows the presence of negative inter-group attitude and polarization among various ethnic groups, notably among ethnic Amharas, Oromos, and Tigray (Abebaw, 2014; Abera, 2010; Ashine, 2019; Mulatie, 2014;

Yirga, 2013; Zekarias, 2020).

Ethnicity, as both a collective phenomenon and a marker of identity, has a distinctive capacity for mobilizing groups in the modern world. While not intrinsically tied to conflict, its psychological underpinnings and discursive frameworks can facilitate violent escalation (Young, 2008). In the early twenty-first century, no other form of social identity wields comparable influence except for closely linked affiliations such as race and religion. Alternative social categories, including occupation, gender, and political allegiance, may provoke competition or discord, yet none match the explosive potential of ethnic consciousness in driving large-scale societal tensions (Young, 2008).

The fact that ethnicity is at the core of the conflicts in public universities is evidenced by the rapid spillover of outbreaks of conflict to and from universities. For instance, instances of ethnic based conflict that occurred outside universities are seen to disturb the university's atmosphere by creating similar ethnic-based clashes among students (CARD, 2020). In support of this, Abebe noted that ethnic based violence has become a common phenomenon in many of the public universities in Ethiopia, particularly over the last decade (2020). This is congruent with Megersa and Minaye's (2023), Mulatu's (2021), and Teshomes' (2021) findings that show most ethnic- based hate speech in Ethiopia surrounds members of three ethnic groups: Oromo, Amhara, and Tigray.

If left unaddressed, the low levels of diversity tolerance among university students may exacerbate ethnic-based conflicts; such tensions are often rooted in social identity dynamics (Yadessa, 2018). This concern is particularly salient in Ethiopia, where prevailing security challenges further undermine the prospects for peaceful intergroup coexistence. The most widely cited global peace index, GPI, for example, frequently releases its findings placing Ethiopia at the lowest ebb of the peacefulness rank. In its report for the past four consecutive years, from 2020 to 2023, for example, it ranked Ethiopia 129th, 132nd, 133rd, 133rd out of 163 countries, respectively, and better off only ten African countries in 2023.

Higher education institution should design all rounded empirical approaches in order to successfully handle the challenges of ethnic based tensions and polarizations. Strategies such as intercultural dialog, peer learning project, and inclusive leadership programs can facilitate the basic skills and attitudes that are fundamental to positive intergroup contact.

University leaders, researchers and policy influencers also have significant role to create inclusive environment where students are armed with relevant skills and competencies to value and celebrate diversities. Ethnic-based conflicts in diverse setting like university campuses are attributed to higher extent to psychological dispositions of individuals such as negative intergroup perceptions. For example, social identity theory suggests that individuals not only drive a sense of self from their group membership but also deploy biased cognitive process that leads to in-group favoritism and out-group bias. Armed with this theory, it is argued that when ethnic identity becomes highly salient, individuals are more likely to perceive members of out-groups as threats to in-group's status, their resources, and security, triggering intergroup tension. This theory also explains how such identity-based conflicts are linked to stereotyping, prejudice, and perceived injustice, often reinforced by historical narratives or societal discourse. (Tajfel & Turner,1979). For example, real or imagined injustice can exacerbate feelings of resentment and victimhood, particularly when students feel their group is underrepresented or unfairly treated in campus policies or social life. Emotional factors such as fear, anger, and group-based pride also intensify interethnic divisions, making campuses vulnerable to conflict during times of political or social unrest.

Admittedly, working across cultures, such as living in Universities, is inherently challenging and requires skills to effectively deal with potential rifts (Earley & Ang, 2003; Molinsky, 2013). For example, Leung & Stephan (1998) argued that understanding and learning from and about others and taking others' perspectives while interacting with people from a different life experience are key skills and assets needed to be successful in multicultural settings. Such tensions and interethnic conflicts also reflect an underlying factor: intolerance. Various studies show that a critical outcome of effective intercultural engagement is tolerance for diversity, defined as the capacity to appreciate and accept cultural differences (Van der Zee & Van Oudenhoven, 2000). The notion of tolerance is widely embraced across many settings and is generally considered critical for the peaceful functioning of culturally diverse societies (Verkuyte & Kollar, 2021).

A society that is culturally, religiously, and ideologically plural implies diversity of substantive worldviews and lifestyles. This diversity gives rise to moral controversies over contrasting and conflicting perspectives about how people, or even society, ought to behave.

The need to manage these controversies makes tolerance both relevant and urgent; "Tolerance makes difference possible, difference makes tolerance necessary" (Walzar, 1997, p. xii).

A critical factor contributing to the tensions is limited cultural competence among students alongside a lack of meaningful and structured opportunities for intergroup contact (Dumessa & Godesso, 2013; Mohamed, 2021; Yirga, 2022). One of the core competencies contributing to effective cross-cultural interaction is cultural intelligence (CQ)- defined as the ability to function effectively in culturally diverse settings (Earley & Ang, 2003) has emerged as a critical construct for navigating intercultural relationships, such as in campuses. Without adequate CQ and diversity tolerance, students are more likely to adopt ethnocentric worldviews, gravitate toward homogeneous peer groups, and reinforce existing stereotypes (Abebaw & Gebre, 2021). These psychological attributes are also fueled by language barriers, identity based politics, and lack of structured institutional initiative to promote diversity (Teshome, 2021). CQ is composed of four interdependent dimensions: the metacognitive, cognitive, motivational, and behavioral dimensions that allow people to understand new social environment, adjust their reactions, and adapt communication across different cultures than their own (Ang et al., 2007). When CQ appears together with diversity tolerance, the attribute to accept, appreciate, and respect cultural variations (Van der Zee & Van Oudenhoven, 2000; Verkuyten & Kollar, 2021) it strongly contributes to ensure an inclusive campus environments, and reduce the risk of conflict.

Yet, the relationship between CQ and diversity tolerance is not linear; it is mediated by other variables such as cross-group friendships (CGF)-defined as close interpersonal relationships between individuals from different ethnic groups. CGFs can serve as a strong mechanism for transforming cultural competence into behavior that fosters social cohesion. Rooted in Allport's (1954) contact hypothesis, CGFs provide sustained, emotionally meaningful intergroup experiences that challenge prejudice and encourage empathy. These relationships are known to facilitate empathy, reduce prejudice, and promote inclusive attitudes by fostering direct and positive intergroup contact (Pettigrew & Tropp, 2006; Davies et al., 2011). When such contact occurs under optimal conditions, such as equal status, common goals, institutional support, and intergroup cooperation, it is especially effective in reducing intergroup bias (Davies et al., 2011; Pettigrew & Tropp, 2006). On the other hand, lack of

intergroup contact**,** or contact that is superficial or conflict-ridden, prevents the development of empathy and mutual respect. Examining the status of CGF and its relation with tolerance is also important as some patterns of friendship along ethnic lines are observed in Ethiopian public universities.

For example, personal observation at campuses shows that while some students befriend others with different ethnic backgrounds, others prefer to befriend with those from the same ethnic groups. Nonetheless, understanding which of these friendship circles contribute to tolerance or intolerance remains unaddressed in the literature. More importantly, despite their documented benefits, the extent and qualities of cross-group friendships at public Universities in the current Ethiopia are very limited. Indeed, the sporadic ethnic based conflicts evident in Ethiopian higher education institutions trigger us to inquire the impact of CGF on students' level of tolerance towards members of other ethnic groups. Thus, in order to build inclusive academic communities, higher learning institutions must set strong foundation for diversity related policies. Understanding the interplay among CQ, DT, and CGF is, therefore, essential for both theoretical and practical reasons. Research has shown that CQ fosters openness to diversity and promotes more favorable attitudes toward out-group members (Ang et al., 2007; Livermore, 2011), while CGFs mediate the link between intercultural competence and prejudice reduction (Pettigrew & Tropp, 2008; Turner et al., 2007). Despite their conceptual and practical relevance, the interrelationships of diversity tolerance, cultural intelligence, and cross ethnic friendship are understudied in the Ethiopian public university context.

Therefor the present study addressed three objectives. First, the study aimed to assess the level of cultural intelligence, diversity tolerance, and cross-group friendships among students at Ethiopian public universities. Second, it sought to examine the relationships among CQ, DT, and CGF. Third, the study aimed to investigate both the direct and indirect effects of CQ on diversity tolerance, specifically, examining whether cross-group friendship functions as a mediating variable in the relationship between CQ and ET. At this juncture, it is necessary to note that, given the various conceptual territories of diversity tolerance, this study focused on ethnic tolerance, which is a recurrent theme in Ethiopian campuses when it comes to peace and conflict. Therefore, ethnic tolerance is defined as the level of tolerance

participants reported to have towards students from other ethnic groups.

In addressing these objectives, the study aimed to generate empirical evidence that contribute to the theoretical discourse and practical approaches to foster cohesion among students in universities. More specifically, the findings inform policymakers, educators, and university administrators in designing evidence-based strategies to reduce ethnic tensions, promote inclusive practices, and cultivate a culture of mutual respect and shared purpose within Ethiopian higher education.

Methods

Study Design

A quantitative cross-sectional design was used to examine the direct and indirect effects of cultural intelligence on ethnic tolerance. The Data were collected using self-administered questionnaires.

Participants

The study involved regular undergraduate students enrolled at Ambo University, a public higher education institution located in central-western Ethiopia. First-year students participated in the study because they are more likely to have limited exposure to the university environment and are more likely to experience adjustment challenges that could pertain to the study outcomes. A total of 400 students were initially selected on the bases of stratified random sampling technique, with department, year of study, and gender being strata used to ensure representativeness and allow cross-group comparisons. This sample size was determined based on factor analysis recommendations of a 5:1 respondent-to-item ratio (Hair et al., 2014). But data from 81 of the 400 respondents were omitted due to being invalid, resulting in 319 usable cases (around 80% of the initial sample). Of these, 65.2% were males, and 34.8% were females. By year of study, 37.6%, 39.2%, and 23.2% were second year, third year, and fourth year and above students respectively.

Measures

The current study employed psychometrically validated questionnaire, in order to measure the constructs of the study. The dependent variable of the study; cultural intelligence was measured by using the 20-item cultural intelligence scale which was originally developed by Earley and Ang (2003). This tool measures four dimensions: metacognitive, cognitive, motivational, and behavioral CQ. The responses were captured on a seven-point Likert scale ranging from one to seven. Nevertheless, based on the recommendations of the expert panel regarding content validity, three items were added to the cognitive cultural intelligence, along with one item each to the metacognitive and behavioral CQ. These items were added to enhance the assessment of participants' specific and contextual cultural knowledge (CCQ), level of conscious cultural awareness (metacognitive CQ), and nonverbal behavioral expressions (behavioral CQ). The scale demonstrated a strong content validity index (CVI) and strong internal consistency in the present study (Cronbach's $\alpha = .87$).

The dependent variable, ethnic tolerance, was assessed using the 8-item diversity tolerance scale developed by Biney and colleagues (2021). Responses were assessed in to five-point Likert scale ranged from one (no extent) to five (to a very large extent). The higher scores indicated a greater acceptance of ethnic diversity. This scale also yield high reliability score ($\alpha = .85$).

The mediating variable, cross-group friendship, was measured using the 4-item scale by Turner and colleagues (2007). This tool examines both the frequency and perceived quality of cross-ethnic friendships among students. Responses were recorded on a five-point scale, where a total score ranged from 4 to 20, with higher scores showing stronger cross-ethnic relational ties ($\alpha = .83$). All instruments were translated and culturally adapted to ensure contextual relevance and semantic equivalence.

Validation of the Instrument

The instrument validation process adhered to the standard for translation and psychometric evaluation. Content validity of the English versions of the CQ, CGF, and DT Scale was first evaluated by panel of experts (N=8) using Lawshe's (1975) method. This evaluation showed strong content validity to all scales, with content validity ratios above 0.75

and content validity indices exceeding 0.90 for all retained items. Following experts' recommendations, minor revisions were made before translation into Amharic language.

The translation procedure adopted rigorous methodological standards to ensure both linguistic accuracy and conceptual equivalence. Forward translation, back translation, and expert panel evaluation were utilized. Confirmatory factor analysis (CFA) further refined the instrument demonstrating excellent measurement properties In the final Amharic versions 21 items were retained from the original 25-item CQ scale, while preserving all items from both the ET (8 items) and CGF scales (4 items). All retained items exhibited strong factor loadings and satisfactory psychometric properties.

Procedure

Data were collected from 400 undergraduate regular students enrolled at Ambo University. Throughout the research processes, relevant ethical standards outlined by the American Psychological Association were adhered, ensuring informed consent, confidentiality, voluntary participation, and respecting the rights and integrity of the study participants. Then, participants completed a self- administered questionnaire assessing CQ, DT, and CGF. Upon administrating the questionnaires with explanations given on how to respond, participants completed and submitted their response on the spot. Finally, the collected data were cleaned, coded numerically, and arranged for statistical analysis.

Data Analysis

The study employed both descriptive and inferential statistical methods to analyze the data. Following data collection, responses were coded and entered into SPSS- version 23. Prior to conducting inferential analyses, relevant statistical assumptions such as normality, linearity, homogeneity of variance, and multicollinearity were rigorously assessed and found to fulfill the requirements. In addition, psychometric evaluation such as item-level analyses and reliability assessments were conducted within the classical test theory framework. The dimensional structures of all constructs (CQ, CGF, and ET) were confirmed through confirmatory factor analysis (CFA). Model fit was assessed against well-established benchmarks: χ^2/df ratio < 5, RMSEA < 0.08, SRMR < 0.08, along with TLI and CFI values ≥ 0.95, indicating acceptable model fit.

Descriptive statistics were computed to describe the status of key study variables, and demographic characteristics of respondents. Bivariate relationships between variables were assessed using Pearson Correlation Coefficients.

To test the hypothesized mediation model assessing CGF as a mediator between CQ and ET, Hayes' PROCESS Macro (Model 4.2) with 5,000 bootstrap resample was implemented. This analytical tool offers robust estimates of both direct and indirect effects while controlling for potential bias. Mediation effects were assumed to be statistically significant when the bias-corrected 95% confidence intervals for the indirect path (CQ via CGF) excluded zero. The nature of mediation (complete vs. partial) was analyzed by investigating the relative sizes of direct and total effects.

Results

The following table (table 1) presents the socio-demographic characteristics of study participants, segregated by sex, academic year, parental education level, and residential area they came from. About 65% of the total sample was male students. Approximately 39% of the respondents were third year students. In terms of residence area students came from, an equal proportion of students (41% each) are from urban and rural areas, while the remaining participants were from semi-urban areas.

Table 1

Demographic Characteristics of participants (N=319)

Variable	Category	n	%
Sex	Male	208	65.2
	Female	111	34.8
Batch (Year of Study)	Second year	120	37.6
	Third year	125	39.2
	Fourth year and above	74	23.2
Residence Area	Urban	132	41.4
	Rural	131	41.1
	Semi-urban	56	17.6
Family Education Level	No formal education	81	25.4
	Primary	67	21.0
	Secondary	65	20.4
	Tertiary	106	33.2

Levels of Cultural Intelligence, Cross group Friendship and Ethnic Tolerance

Table 2 displays the mean scores of the participants on CQ, CGF, and ET.

Table 2

Descriptive Statistics for Ethnic Tolerance, Cross-Group Friendship and Dimensions of Cultural Intelligence (N = 319)

Variable	No of items	M	SD	Min	Max	Percent
Ethnic Tolerance	8	31.81	6.66	9	40	60.5
Cross Group Friendship	4	14.66	2.52	5	20	58.6
Metacognitive CQ	4	19.06	3.99	5	29	49.3
Cognitive CQ	6	20.43	6.00	6	31	53.1
Motivational CQ	5	23.09	4.26	5	35	63
Behavioral CQ	5	21.04	3.55	7	29	63.6
Aggregated Cultural Intelligence	21	88.43	13.23	35	110	62.4

Note, M= mean; SD= standard deviation; and Min and Max are observed score range.

The above table (Table 2) shows the respondents' levels of CQ, ET and CGF, as it is measured by mean score values (Field, 2018). From the total of 319 participants, a majority (60.5%, n = 193) scored high in ethnic tolerance, while the remaining 39.5% (n = 126) scored below the mean, indicating lower tolerance towards ethnic diversity. Pertaining to CGF, 58% (n = 187) of respondents showed high engagement, as reported in frequency of interactions they have with relevant out-group members, whereas 42% (n = 132) scored below the mean, suggesting limited interethnic social ties. In terms of CQ, 62% (n = 199) of respondents' surpassed the mean total CQ score, while 38% (n = 120) fail below it. A detailed analysis of CQ sub-dimensions indicated differences across CQ dimensions: metacognitive CQ: Only 49% (n = 157) scored above the mean, indicating a relative weakness in conscious cultural awareness during cross-cultural interactions, cognitive CQ: A slight majority (53%, n =169) reported to have high cultural knowledge, while 47% (n= 150) scored below the mean, for motivational and Behavioral CQ: Stronger competence was observed, with 63% (n = 202) and 63.6% (n = 203) scoring above the mean.

Relationship among Study Variables

The correlation between the study variables; CQ, ET, and CGF - are presented in the table below (Table 3).

Table 3

Inter-correlations between Cultural Intelligence, Cross-Group Friendship, and Ethnic Tolerance

S/N	Variables	1	2	3
1	Cultural intelligence	1	.655**	.823**
2	Cross Group Friendship		1	.793**
3	Ethnic Tolerance			1

***. Correlation is significant at the 0.01 level (2-tailed). Variables Inter-correlation matrix*

Table 3 presents the inter-correlations among the study variables. The analysis reveals statistically significant positive relation among CQ, ET and CGF.

Direct and Indirect Effects of CQ on ET via CGF

This study examined the mediating role of cross-group friendship (CGF) in the relationship between cultural intelligence (CQ) and ethnic tolerance (ET) among 319 participants. To test the hypothesized mediation model, regression analysis was conducted using the PROCESS macro (Version 4.2; Hayes, 2018), which facilitates the assessment of direct, indirect, and total effects. The results, presented in the following tables, demonstrate the direct effect of CQ on ET, the indirect effect mediated through CGF, and the total effect of CQ on ET. The analysis employed bootstrapping with 5,000 resample to generate bias-corrected confidence intervals, following recent recommendations for mediation analysis (Hayes, 2022; Preacher & Hayes, 2008).

Table 4

Model summary for mediation regression analysis (Process v4.2)

Statistics	Value
R	0.89
R^2	0.79
MSE	9.37
F(2, 316)	595.77
P	*< .001*

The above table (table 4) presents the model summery of mediation regression analysis examining the relation between CQ, CGF and ET through PROCESS v4.2. The overall model was significant, F (2, 316) = 595.77, p< .001, and accounted for 79% of the variance in ethnic tolerance (R2= 0.79), indicating a good fit of the model.

Table 5

Regression Coefficients for Predictors of Ethnic Tolerance (PROCESS macro V.2; N=319)

Predictor	B	SE	T	P	95% CI (LL, UL)
Constant	9.12	1.2	7.75	< .001	6.75, 11.49
Cultural Intelligence (CQ)	0.26	0.01	15.57	< .001	0.23, 0.30
Cross-Group Friendship(CGF)	1.17	0.09	13.08	< .001	1.00, 1.35

Note. B= unstandardized regression coefficient; SE= standard error; CI= confidence interval; p values are two-tailed.

Cultural intelligence and cross-group friendship were both significant positive predictors of ethnic tolerance, $p < .001$(Table 5). Table 6 presents the regression coefficients for the direct and indirect effects in the mediation model.

Total Effect Model

Table 6 presents the overall model fit for the total effect model predicting ethnic tolerance (the outcome variable). The model was statistically significant, F (1, 317) = 664.01, p < .001, explaining 67% of the variance in ethnic tolerance ($R^2 = .67$), indicating a strong overall association between CQ and ET.

Table 6

Overall Model Fit for the Total Effect Model

Statistic	Value
R	0.82
R^2	0.67
MSE	14.41
F(1, 317)	664.01
P	< .001

Total, Direct, and Indirect Effects of CQ on ET

The analysis in Table 4 revealed a robust total effect of CQ on ET (B = 0.41, p < .001), where each unit increase in CQ corresponded to a 0.41 unit increase in ET. The completely standardized total effect (β = 0.82) confirmed a strong association between these constructs (Table 7).

Table 7

Total, Direct, and Indirect Effect of Cultural Intelligence on Ethnic Tolerance (PROCESS v4.2; N= 319)

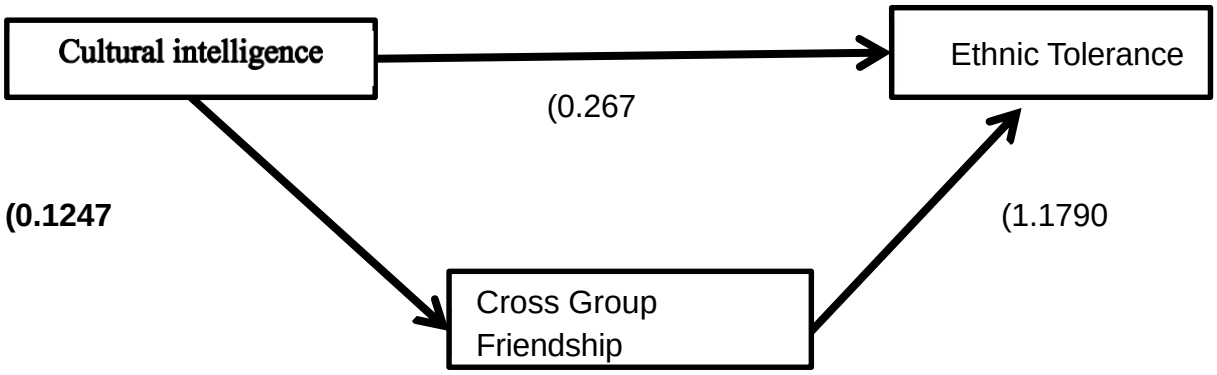
Effect	B	SE	T	P	%CI(LL,UL)	Standardized Effect
Total Effect	0.41	0.01	25.76	< .001	0.38, 0.44	0.82
Direct Effect	0.26	0.01	15.57	< .001	0.23, 0.30	0.53
Indirect Effect	0.14	0.01	-	-	0.11, 0.18	-
Completely Standardized Indirect Effect (CGF)	0.29	0.03	-	-	0.22, 0.36	0.29

N.B. *Results are based on Hayes' PROCESS macro (v4.2), Model 4. Indirect effects were tested using bias-corrected bootstrapping with 5000 resamples. CI= Confidence interval; CGF= cross-group friendship; p-values are two-tailed.*

The direct effect of CQ on ET remained statistically significant after accounting for the mediator (B = 0.26, p < .001; standardized β = 0.53), indicating that CQ maintains substantial independent predictive power. Importantly, the indirect effect through CGF proved significant (B = 0.14, 95% CI), with a standardized indirect effect of β = 0.29 (95% CI). These results establish that approximately 35.49% of CQ's total effect on ET operates through the mediating pathway of cross-group friendships. The overall model demonstrated a good fit, with 79.0% of the variance in ethnic tolerance (R^2 = 0.79, p < .001) and 42.9% of the variance in cross-group friendships (R^2 = 0.42, p < .001) accounted for by cultural intelligence. These findings collectively highlight the dual mechanisms through which cultural intelligence enhances ethnic tolerance; both through direct cognitive-affective pathways and indirectly through fostering meaningful intergroup connections.

Figure 1

Mediation model depicting the direct and indirect effects of CQ on ET through CGF. Values on the paths represent unstandardized regression coefficients.



To sum up, the analysis demonstrated that CQ had a significant direct effect on ET, indicating that higher levels of CQ were associated with greater ET. Additionally, the findings highlighted a significant indirect effect of CQ on ET through CGF, suggesting that CGF plays a mediating role in this relationship. Overall, the results provide evidence for the dual pathways, direct and indirect, through which CQ contributes to enhance ET, with CGF playing a critical mediating role.

Discussion

This study aimed to examine the relationship between cultural intelligence (CQ) and ethnic tolerance (ET), focusing on the mediating role of cross-group friendship (CGF). By investigating both the direct and indirect effects of CQ on ET, the study assessed how individuals' ability to navigate and adapt to cultural differences influences their ET, and whether this relationship is facilitated through CGF. The study showed a significant proportion of participants demonstrated high levels of ET, CGF, and overall CQ. However, the distribution of scores across the four dimensions of CQ (metacognitive, cognitive, motivational, and behavioral) varies, highlighting areas of strengths and weaknesses.

About 60% of participants demonstrated high levels of ethnic tolerance, which implies that more than half of the participants are students are comfortable and willing to attend the classroom, share accommodation, attend festivals and religious celebrations with

other ethnic counterparts, which is a positive indicator of their ability to peacefully coexist and interact harmoniously with individuals from diverse ethnic backgrounds. This result aligns with previous research indicating that university settings, typically characterized by diverse student bodies, promote a higher acceptance of ethnic diversities (Pettigrew & Tropp, 2006). Furthermore, a study by Demeke and Tefera (2020) on ethnocentrism among university students found that students showed lower levels of ethnocentrism. And the qualitative study by Yirga, 2013 also showed that students generally have a positive attitude toward out-group members and develop positive intergroup contacts. Other findings are also available, which concluded that the intergroup attitude among university students of various ethno-cultural groups is mainly characterized by positive sentiment (Adamu, 2013; Semela, 2012).

However, the remaining significant minority of participants (39.5%) scored low on ethnic tolerance. This implies that these student populations are less comfortable attending class, sharing accommodations and participating in religious celebrations and festivals with students from other ethnic groups. This discomfort may be associated with preconceived judgments and prejudice toward out-group members. Supporting this view, previous research findings indicated that both positive and negative interethnic attitudes exist among university students (Dumessa & Godesso,2013). To further illustrate, Adamu (2013) added that students' ethnocentric behavior and attitude toward out-group members negatively affect the intergroup relation among students. In general, this finding suggests that while significant portions of the population have positive attitude to ethnic diversity, a considerable minority (39.5%) remains uncomfortable living and interacting with ethnically diverse students, which could hinder social cohesion. Moreover, the absence of explicit policies and strategies, along with limited institutional initiations for ethnic diversity management in the universities, has contributed to the negative intergroup relations among students (Dumessa & Godesso, 2013; Mohamed, 2021; Yirga, 2022).

To this end, the universities should incorporate multicultural education and diversity training for the diverse group coming together, as Pettigrew and Tropp (2000) cautioned, simply bringing different racial and cultural groups into contact may generate more heat than light.

The current study also found that 58% of respondents reported high levels of engagement with cross-group friends, indicating a willingness to form and maintain friendships across ethnic lines, have trust in these out-group friends and likely spent much time with this cross ethnic friends. This is a promising finding, as cross-group friendships are known to reduce prejudice and promote social integration. This finding aligns with Semela's work on intergroup relations of youths in higher institutions, which found that a majority of the students held a positive attitude towards fellow Ethiopians belonging to other ethnic groups and are likely to choose friends from ethno- cultural or religious out-groups (2012).

However, the 42% who scored low in cross-group friendship have limited interactions with individuals from other ethnic groups. Indeed, intergroup contact between students from different ethnic groups is fraught with intense ethnocentrism, and often leads to inter-ethnic conflict in university compounds (Amsalu & Mesfin, 2020). In support of this, Semela (2012) noted that cross ethnic relations among students, particularly in dormitories and classrooms, are often strained due to language barriers, historical tensions, and groupthink. Some studies concluded that students tend to form homogeneous groups based on ethnicity (Dumessa & Godessos, 2013; Merara, 2003; Teferi, 2010). These findings are consistent with established social psychological theories of group formation, which posit that individuals tend to form friendships based on principles of similarity, including shared ethnic identity and language (Mayer, 2010). Notwithstanding these, it is more likely that intergroup contact would foster the trust and respect necessary to develop strong interethnic friendships. Admittedly, limited interaction among students from diverse backgrounds tends to reinforce negative stereotypes and sustain racial tensions (Crain et al., 1982; Oakes & Wells, 1995, as cited in Dumiso & Godesso, 2013). I strongly agree that university teachers and institution play a crucial role in either mitigating or perpetuating existing intergroup relation.

Equipped with Allport's conception of optimal intergroup contact for reducing prejudice, which underlines institutional support as a key prerequisite—I argue that university managements have to design and implement mechanisms that promote CGF in the campuses. By ensuring policies, resources, and leadership that encourage meaningful intergroup contact, universities can be places where students not only tolerate but also appreciate and celebrate others.

The analysis of CQ offers further insight into the understanding of the participants' intercultural competencies. Sixty two per cent of research participants scored above the mean in overall CQ, indicating a relatively high level of CQ. The study found that 63.6%, 63%, and 53% of the study participants scored relatively high in behavioral CQ, motivational CQ, and cognitive CQ respectively while a relatively smaller proportion of them (49%) showed high metacognitive CQ.

These scores suggest that even though students are motivated to engage in cross-cultural interactions, have knowledge about different cultures, and can adapt their behavior in multicultural setting, they may be challenged in terms of conscious awareness and reflective thinking needed to effectively navigate intercultural situations. Echoing this, previous studies showed lower scores on metacognitive CQ reflect a gap in individuals ability to properly reflect on their cultural assumptions and biases during cross-cultural interactions. Van Dyne and colleagues, for example, argued that metacognitive CQ is a critical component that helps effective intercultural communication, as it involves higher-order cognitive processes such as evaluating and monitoring cultural interactions (2012). It is also noted that a lack of metacognitive CQ is more likely to lead to misunderstandings or misinterpretations in cross-cultural settings (Van Dyne & Nielsen, 2007). Often, metacognitive CQ is found to be underdeveloped in individuals who have not received training in intercultural competency. This finding, therefore, underscores the importance of fostering metacognitive CQ, such as self-awareness and self-reflection, through intercultural education and training programs.

In conclusion, while the majority of participants exhibited a relatively high level of ET, CGF, and CQ, enhancing metacognitive CQ requires further attention. Indeed, a significant minority have shown lower ET and CGF, signaling areas that require interventions.

Building upon these observations, the mediation analysis further indicated a significant total effect of CQ on ET ($B = 0.41$, $p < .001$), with a completely standardized total effect of 0.82. These results demonstrate that individuals with higher CQ levels show significantly greater ET, as manifested through their enhanced capacity to (a) appreciate cultural differences, (b) respect diverse ethnic backgrounds, and (c) engage with ethnic

diversity within the university setting. The magnitude of this relationship implies that CQ operates as a critical competency for enhancing intercultural harmony.

This strong relationship supports Van Dyne et al.'s (2012) theoretical framework, which suggests that higher CQ enables individuals to meaningfully navigate cultural differences. Furthermore, the findings align with three key scholarly conversations. First, they support Ang et al.'s (2007) behavioral adaptation model, which posits that CQ fosters intercultural effectiveness by enabling behavioral and cognitive adaptation in multicultural contexts, thereby promoting tolerance and reducing prejudice. Second, they are consistent with Genkova et al.'s (2012) prejudice-reduction hypothesis, regarding how intercultural competency contributes to positive intergroup contact and reduction of prejudice. Third, they corroborate conflict resolution frameworks (Armon & Runde, 2016; Van Dyne & Nielsen, 2007) that place CQ as an important mediator in intercultural conflicts.

Contextually, these findings gain particular importance when assessed alongside recent Ethiopia-specific research. For instance, Amsalu and Mesifin (2023) studied the role of intercultural communication in alleviating ethnic strains within Ethiopian universities, showing that students with higher intercultural competency demonstrated more favorable attitudes toward ethnic diversity. Moreover, Ashine (2019) emphasizes the importance of cultural competency in addressing ethnic-based conflicts in Ethiopian higher education institutions.

The present study substantiates these claims, providing additional evidence that position CQ as a strong predictor of ET even in highly diverse and ethnically charged settings such as Ethiopian universities.

The strong link between CQ and ET ($B = 0.26$, $p < .001$) highlights the need for Ethiopian universities to implement the following integrated interventions. First, curricula should include CQ training (Ang et al., 2006), behavioral adaptation (Templer et al., 2006), and conflict resolution (Mahdi et al., 2014). Second, faculty development must address implicit biases and intercultural mentoring (Manaze & Zeleke, 2021). Third, universities must create planned cross-ethnic contact opportunities via living-learning communities and collaborative pedagogies (Sternberg, 2020). Together, these interventions can systematically promote intercultural harmony in Ethiopia’s diverse campuses.

A key contribution of this study is the identification of CGF as an important mediator in the relationship between CQ and ET. The indirect effect of CQ on ET through CGF suggests that CQ contributes to the formation of CGF, which in turn enhances ET. This finding is consistent with the idea of the contact hypothesis, originally proposed by Allport (1954), which assumes that positive intergroup contact such as CGF reduces prejudice and promotes mutual understanding among members of different groups. Researches by Hurtado (2005), Levin et al. (2003), and Pettigrew and Tropp's (2006) meta-analysis further support this claim, demonstrating that intergroup friendships help as a strong mechanism for prejudice reduction by facilitating empathy, trust, and personalized interactions. Besides, Schwarzenthal et al. (2017) highlighted that CQ is directly linked to increased intercultural contact, which, in turn, is associated with lower prejudice. This is particularly evident when such interactions reduce anxiety and enhance empathy, as supported by Pettigrew and Tropp (2006, 2008).

In the Ethiopian context, the mediating role of CGF is particularly significant, as ethnic divisions are often exacerbated by a lack of meaningful intergroup interactions. This finding aligns with CARD (2020), which documented numerous instances of ethnic-based violence in Ethiopian universities and highlighted the lack of cross-group interactions as a contributing factor to these conflicts. The current study extends this research by demonstrating that CQ serves as a catalyst for cross-group friendships, which in turn promote ethnic tolerance. This is further supported by Amsalu and Mesifin (2023); Teferi (2010); Yirga, (2014) who recommended structured intergroup activities, such as collaborative projects and open-dialogue, open-mindedness, developing a culture of tolerance, and cross-ethnic ties as effective strategies for fostering cross-group friendships in Ethiopian universities. Thus, interventions aimed at promoting cross-group friendships could have a significant impact on reducing ethnic tensions as frequent intergroup contact with diverse peers is associated with several positive outcomes, including greater cultural awareness and development of pluralistic mindset.

Conclusion and Recommendations

This study showed that the majority of students exhibit high levels of CQ, ethnic tolerance, and engagement in CGF. These results highlight that participants are generally comfortable interacting and living with peers from diverse ethnic backgrounds. A key finding from this study is that it provides robust empirical evidence that CQ is a strong and positive predictor of ethnic tolerance, both directly and indirectly through cross-group friendships. While participants showed higher overall CQ, metacognitive CQ was lower, indicating a gap in reflective awareness and conscious monitoring of cultural assumptions. This indicates that it needs attention because it may hinder students' ability to properly navigate complex intercultural situations, even when other dimensions of CQ are strong. The study also showed that CQ has both direct and indirect effects on ethnic tolerance, with CGF playing mediating role. This suggests that students who are more adept at navigating and understanding cultural differences are also more likely to exhibit tolerance toward other ethnic groups, particularly when these abilities ease CGF.

In summary, the study highlights by fostering CGF and enhancing cultural intelligence, universities can transform from sites of conflict into models of intercultural harmony. The findings of this study also provide a strong foundation for future researchers and policy makers who aim to promote ethnic tolerance and peaceful coexistence in Ethiopian higher education institutions.

Based on the findings, we recommend the following. First Universities should recognize that formal policies and strategies are necessary to promote ethnic tolerance and ensure harmonious intergroup relations among students. To this end, universities' curricular and co-curricular programs should integrate CQ training. This training should focus on behavioral, cognitive, and metacognitive skills, empowering students to critically reflect on their pre-existing assumptions and navigate intercultural interactions. Second, universities should recognize that simply bringing together students from diverse backgrounds is insufficient to ensure positive intergroup perception and relation. Therefore, they must intentionally promote structured cross-group interactions through various means such as collaborative learning activities, shared accommodations, and dialogue sessions that help students have adequate opportunities to form meaningful friendships across ethnic lines.

In addition, as the cross-sectional design precludes causal inferences, the findings of this study suggest directional relationships among the study variables. Therefore, experimental designs are needed to establish causality more conclusively. In addition, it is recommended to extend this study by qualitatively exploring participants' worldviews, lived experience, and perceptions of participants to gain deeper insights into the study variables. It is also helpful to extend this study by including participants from different universities across the country to have a better picture of Ethiopian public universities.

Overall, this study addresses a critical and under-researched issue in Ethiopian public universities, providing timely and relevant evidence for higher education institutions characterized by ethnic diversity and sporadic intergroup conflict. Despite its strengths, nonetheless, the study has some limitations that should be acknowledged. First, given the sensitive nature of ethnicity and tolerance, the reliance on self-report measures may allow social desirability bias. Second, the study was conducted in a single public university. These may limit the generalizability of the findings as contextual factors that affect the study variables may vary across institutions.

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No potential conflict of interest was reported by the authors.

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