



Impact of ethnic identity and geographical home location on student academic performance

Lazarus Obed Livingstone Banda ^{a,*}, Jin Liu ^a, Jane Thokozani Banda ^b,
Wenhui Zhou ^a

^a Beijing Institute of Technology, School of Humanities and Social Sciences, Liangxiang Campus, Fangshan District, Beijing China

^b Ministry of Education Headquarters, Directorate of Higher Education, Lilongwe, Malawi

ARTICLE INFO

Keywords:

Academic performance
Higher education
Region of origin
Missionary education
Literacy

ABSTRACT

Situated against the backdrop of a politically fueled ethnic hate between the Northern Region and the rest, this study exposes the relationship between the students' regions of origin and their academic performance in Malawian higher education to contribute to appropriate student support and healthy study habits. Spearman's r_{HO} indicated weak but statistically significant correlations between one's home region and academic performance. Kruskal Wallis Test ($N = 20,263$) revealed that no single region outperforms others. Thematic analysis of interview data ($N = 15$) through NVivo revealed that students believe effort matters more in academic performance irrespective of one's region of origin. Implications for education policy that harness healthy study habits to enhance student achievement, retention, and self-efficacy about success are discussed.

1. Introduction

Globally, the relationship between academic performance (AP) and racial and ethnic identity has been well-studied from many perspectives, focusing on the macro view. More studies have focused on a comparative perspective across races and national identities. For example, studies in the United States, Asia, and Germany [1] have compared the AP of natives and non-native minorities. Few studies have focused on students from the same country and within a particular ethnic group. Numerous scholars distinguish ethnic from racial identity. Ethnic identity refers to people's sense of pride, engagement, and connection with their cultural heritage [2,3].

In contrast, racial identity relates to identities constructed in response to subjugation and social segregation based on race [4]. In Germany, the term "racism" refers to prejudice against ethnic and religious minorities, which reflects the racial profiling of people viewed as Other [1,5]. AP is a multivariate construct. In this paper, we define AP as the capacity to comprehend the fundamentals of a subject, demonstrated in the proportion of marks gained using valid and dependable assessment techniques [6] primarily operationalized as the final grade from one's significant subjects [7]. In Malawi, the Northern Region is associated with academic achievement in terms of the highest literacy rate. Literacy is publicly associated with academic performance. The gap between beliefs and reality about student performance creates room for systematic discriminatory policies, political hate, poor AP in higher education (HE) and public appointments on the one hand and scientific reality on the other, which has the potential to fuel persistent national disunity, dissuade United Nations Sustainable Development Goals (SDGs) 2030 and the United Nations Development Programme (UNDP) agenda 2063 achievement.

* Corresponding author.

E-mail address: lazaruslivingstonebanda@gmail.com (L.O.L. Banda).

There is a paucity of research explicitly examining the significance of regions to educational outcomes. We only identify a small number of studies that include geographic indicators of regional contexts, such as travel time or distance, to capture how regional conditions affect educational opportunities. Systematic studies on the relationship between AP and geographical region of origin in HE is still inadequate. High academic performance invokes positive and negative feelings among peers [7]. The study contributes to the available debate on is an extension of Chen et al. study in which they examined the relationship between academic achievement and friendship nominations from same-ethnic and cross-ethnic peers among an ethnically diverse sample of students, with emphasis on friendship preferences as a measure of peer reactions to academic performance [7]. This study aims to introduce the geographical and ethnic heterogeneity of students into Malawian education policy.

While student heterogeneity is diverse, we concentrate on their academic achievement because disparities in academic achievement are critical to education policy. The present study is the first mixed-design study using a database of 10,585 students' AP and students' administrative records and interviews to explore this relationship in Malawi HE. It also examines how the belief that the Northern Region is associated with higher academic achievement impacts students' life in public higher education in Malawi. The results will help strengthen healthy democratic debate, educational policy, high school and university students' academic behavior, faculty attitudes, and parental roles in learners' education [8–12].

To better understand and interpret this study, we begin by elucidating the institutional setting of Malawi and its educational system. The rest of the paper is structured as follows: section 2 presents the institutional context, section 3 presents a brief literature review, while Section 4 is the theoretical framework. Section 5 is the methodology, followed by our results in section 6. The discussion section comes before the conclusion and recommendations in section 7.

1.1. Institutional context

Malawi is a small African multi-ethnic and multi-religious, partitioned since 1921 into the northern (NR), central (CR), and southern (SR) regions (refer to Fig. 2) [13]; each province comprises a dominant tribe and language [8,13]. Four consecutive presidents from the SR appointed more public officers from their tribes and promoted their languages [13] (Lhomwe and Yao) and culture (Mulhakho and Chiwanja cha Ayawo) for political mileage [9,10].

Incontrovertibly, the NR has had the highest literacy levels and consistently topped the chart [14]. It is believed that other regions do not compete favorably with it. According to a former state president, the quota system of university admission was implemented to offset NR dominance. Formal education in Malawi dates to the pre-colonial era when missionaries established schools to champion their agenda and preferred establishing schools in regions with the most acceptable weather conditions and without cultural conflict [13,15], an idea interlaced with the social circumstances in those areas. Their institutions highly impacted the natives' attitudes toward education [16]. While in the SR, with their belligerent attitude against missionary education, the Yaos preferred Islamic education, emphasizing basic Koranic teachings, as opposed to Western education, the CR and NR had a different perspective [16]. The bigotry approach to education exacerbated the tribal and religious gaps among the regions. While using the Chichewa Language from the CR was an insult to the SR, English was an acrimonious affront to the SR Muslims. Consequently, considered infidels among the SR, missionaries established more schools away from the SR, implicitly sowing a vibrant seed of tribal and regional discord in the country [15].

Contrary to the SR, which has the highest poverty level (63.7%) and the lowest per capita expenditure, the NR has the lowest poverty level (43.7%) and highest per capita expenditure [17], while the CR has the highest poverty level (63.7%) with the lowest per capita spending. According to the Ministry of Education and SDNP, the NR has only 15 conventional secondary schools against 30 in the CR and 31 in the SR. Records from NSO indicate that 22.6% of learners in NR, 12.3% in CR, and 19.3% in SR are in missionary primary schools. Unexpectedly, of all the 5.6% in the mission secondary schools, 4% are from NR, 5.3% from CR, and 6.4% from SR. However, quality private schools charge high fees for many average Malawians [18], especially for the CR and SR regions. The NR has the least primary school dropout rates (3.3%) compared with the CR (5.5%) and the SR (5.3%), with 50% of school dropouts related to economic challenges (especially in CR), while the rest is due to distances to the nearest school (6.3%), loss of interest (mainly in the NR and SR), and parental influence (12.8), illness (14.6%), and loss of parents (21.4%). The dropout rates in the CR (5.5%) and SR (5.3%) are almost double that in the NR (3.3%).

While the NR is patrilineal, and the SR is predominantly matrilineal, with the highest divorce and remarriage rates and female-headed families, the CR practices both matrilineal and patrilineal [8,19,20]. Divorce, mediated by economic factors, adversely impacts school enrollment [19–22]. Compared to male-headed families, more female-headed families have lower literacy levels, less education certificate completion, low school attendance, especially in private schools, and experience more dropouts [17].

There is a higher rate of internal student mobility flow towards the North at the secondary school level and a reverse at higher education. Through the quota system, the mission (grant-aided) national secondary schools admit a substantial number from the SR, followed by CR. Of the 29.9% in private high schools nationwide, 31.2% are from the NR, 30.3% from CR, and 29.1% SR.

It reverses in higher education because, since 1994, Malawi has had five public university campuses, with none in the NR until 1997, implying higher intra-national student mobility from the NR. It is not also clear whether such traveling distance affected student academic performance. Nonetheless, this concern is beyond the interest of the current study. The third university was not established until 2011. All these together, the gross enrollment falls far below a third of the qualified students nationwide. The influx of the northerners into the only available universities in the Central and Southern regions was a threat to the host communities.

Due to their language differences, their presence was more conspicuous among the host communities or the immobile student who feared being outnumbered, which has long been wrongly conflated with academic performance dominance. It is a common belief among many Malawians that people from the NR perform better academically than those from the CR and the SR. Nevertheless, the

multi-billion-dollar question is: Is it scientifically true that Malawian HE students from NR perform better than the rest? The socio-political rift keeps widening between the NR and the others, and politicians exploit such segregation for their good [23]. This is evidenced by the demonstrations reported on September 12, 2019: “*North Malawians protest ‘Education genocide,’ demand abolition of quota system.*” Proponents of the alleged supremacy hardly accept deviations from the expectation, nor do the quota system’s perpetrators.

Without research, some stakeholders protest against admission outcomes in which NR does not dominate, while politicians exploit this at the expense of national unity. Against the backdrop, our study investigates the relationship between students’ home region (HR) and AP. The study attempts the following questions.

- a) Is there a relationship between the region of origin and academic performance?
- b) What do students think about the rumors that one region performs higher than all others in Malawi?
- c) How does this rumor affect students’ social interaction and study habits?
- d) What emotions does this rumor invoke among students from various regions?

Using Spearman’s rho and regression modeling, the study answers the first question using data from AP records, while the rest are responded to through interviews and literature review. Results will inform public HE admission policy to catalyze national unity and solidarity, enhance sustainable socioeconomic development, and help students align their study habits with the academic demands of higher education.

1.2. Related literature

The recurrent vitriolic debate about the differences in cognitive abilities among ethnic groups attributed either to heritability [24] or non-biological factors [25] has refused to die for ages [25–27]. Scientists suggest that the relationship between students’ ethnicity, race identity (ERI), and academic performance may be most substantial for students of color who experience discrimination in school and use their ERI to defend against these adverse experiences [28]. Concerning the association between ethnicity and race on the one hand and academic performance on the other, the academic literature is inconsistent [28]. While some researchers posit that the association would be negative or positive, others opine that there would be none. Others postulate that the magnitude and direction of correlations would depend on the context and the ethnic groups involved. Extant literature reports correlations ranging from negative moderately small to positive moderately large, which is perhaps not surprising given these predictions. These discrepancies surrounding the trajectory and extent of the associations indicate the need for more contextualized research [28,29].

A meta-analysis aimed at advancing the theoretical stalemate and identified a construct shared by each strategy [30] found an average correlation of $r = .17$ between positive ethnic-racial affect and performance across 13 studies. Miller-Cotto & Byrnes sought to extend their meta-analysis in three approaches: (a) It located eight additional studies exploring the correlation between positive ethnic-racial affect and performance to determine whether the average correlation is comparable to Rivas-Drake et al., employing the more extensive set of 21 studies, (b) it encompassed several studies that investigated other constructs of ethnicity/racial identity (ERI) to put into perspective the finding for positive affect and incorporated the outcome in a broader set of outcomes that must be accounted for in any theory of ERI, and (c) it tested the projections of multiple theories utilizing the meta-analytic results for the discipline to be able to benefit from considering how the most supported theories could be combined [28].

Katharina Spiess and Katharina Wrohlich (2009) analyzed the impact of proximity to a university on the demand for higher education in Germany [31]. Controlling for other socioeconomic and regional factors, their findings revealed that the distance to the nearest university at the time of high school graduation significantly impacts the decision to enroll in college. Studies show that intelligence development, a factor of student academic success, is contingent on ecological such as the learning process [32], resource distribution [13], the school type, socioeconomic status (SES) of students, parental education, and personality, and biological variables [33–35], in the Malawian context. It is worth looking at the historical background of education in Malawi to appreciate the bone of contention in this study.

Much as studies attest to a positive correlation between ability and performance [36–39], other non-cognitive factors such as school quality [40], neighborhood [41], and economic quintiles [42–44] account higher when predicting performance than ability alone [36, 45]. States that school size affects student performance. Student AP is higher in smaller institutions than in bigger ones; all other factors are constant. While some studies indicate that poverty is a critical factor in literacy, AP, and participation [46–48], others found that not only school quality and environment correlate with AP [47,48], but also proximity to such schools impacts student performance and participation [49,50]. and participation [47]. In contrast, others opine that family structure significantly influences AP [40,51,52].

1.3. Theory of performance

The Theory of Performance (ToP) derives from Elger (2007). He defined ‘perform’ as the capacity to generate a valued outcome and ‘performer’ as a person or a team that collaborates, while ‘level of performance’ represents the location in a student’s educational journey [53]. The following are six elements of performance levels: level of knowledge, level of skills, level of identity, personal factors, and fixed factors. Elger proposed three axioms for effective performance: the performer’s mindset, immersion in an enlivening atmosphere, and involvement in a reflective practice [53].

Positive emotions such as setting demanding goals, permitting failure as a regular part of achieving high performance, and giving circumstances in which the performer feels comfortable safety are elicited through the behaviors of a performer [54]. Immersion in a

social, physical, and cognitive setting, such as social connections, discipline-specific information, active learning, positive and negative emotions, and spiritual alignment, can boost academic performance and promote personal and professional growth [54]. The reflective practice incorporates behaviors that encourage people to pay attention to and learn from their experiences. Examples include monitoring the current level of performance, recording achievements, examining strengths and places for progress, analyzing and developing identity, and increasing knowledge levels [54].

The notion of performance pushes educators and students to enhance their performance through autonomy in order to facilitate the effective learning and development of others. This style of education will promote rapid success and generate information that will impact society. Higher academic performance yields outcomes that result in an improvement in academic quality. This procedure generates an environment where university stakeholders' expectations for success are exceeded. Additionally, costs will drop; fewer financial resources will be required to provide the desired outcome. In addition to enhancing competence, capacity, knowledge, and skills, improved academic achievement will also raise motivation [53]. In conventional contexts, the idea guides learning in schools, workshops, and other traditional learning environments.

In contrast, this theory enriches learning in non-traditional contexts that are not generally viewed as learning environments. Academic advising, personal growth, departments, research groups, and colleges are examples of these situations. Organizational learning is informed by the theory of performance through the examination of the "level of performance" of the organization [54].

Against this theoretical background, and in line with prolific literature, this study contends that the academic *milieux* enhance the development of competencies, stimulate individuals to engage in various activities, and reward individuals for displaying values and attitudes. Environment affects self-perceptions, competencies, dispositions, desires, and personal and professional goals [55]. The "congruence assumption or hypothesis" states that individuals' educational performance depends on the congruence between their personality types and educational contexts. Students' AP can be predicted based on the harmony between their personalities and any particular academic setting. Spokane (1985) also demonstrated a substantial positive correlation between congruence and academic success [56]. Students' performance may not show variability in the group ranks depending on the environmental factors. Gifted students may not perform optimally if subjected to an incongruent academic environment. The geographical, social, economic, and political milieu is vital to student achievement and performance. Government policies also impact access to quality education and are accountable for the academic achievement disparities across economic quintiles. Disparities across families, such as Income, parental educational attainment, household composition, neighborhood conditions, school quality, parental preferences, investments, and decisions, impact student academic and educational success [57].

2. Methodology

Study design: The study design was two-fold. On the one hand, the comparative study was cross-sectional. The method enabled us to collect voluminous national-representative data from multiple institutions simultaneously. The cross-sectional design fits the study objective since the researchers neither studied cause and effect relationships nor compared the academic achievement vis-à-vis time among the three regions. There were two instruments used to collect data. For the quantitative data, we collected data through institutions' document analysis using a generic Excel template based on the available literature. The Excel template (instrument) for collecting data from document analysis included the following columns: students' age (age bracket), gender (instantiated male or female), district of origin, home region, year of study, subject specialty GPA for the first semester, GPA for a second semester, and cumulative GPA. As in many other studies, we operationalized AP as GPA. The theoretical framework was from relevant published literature. The instrument was sent to the institutional administration through email due to Covid 19 travel restrictions in China and Malawi by the time of data collection after piloting it in one university and making the necessary changes to the instrument. The survey data was compiled by institutional management and emailed to the researchers.

The survey data was augmented with semi-structured interviews with students (N = 15), 5 from each region. We chose the interviews because of their power to solicit in-depth information in line with the study objectives. The unstructured questionnaire for interviews was developed after thorough consultation of relevant literature. Similarly, the interview questionnaire was piloted among 3 students from another university within Malawi, one from each region/ethnic group, after which we refactored the instrument appropriately.

The overall study objective yielded 6 interview questions that guided the study. For the interview questionnaire, the participants

Table 1
Questionnaire for unstructured interview.

Item number	Item/interview question
1	How would you compare students' academic performance from your university's various regions of Malawi?
2	If students believe their particular region determines their academic performance, how would such thinking affect their academic-related behavior?
3	How could beliefs about one region having better-performing students than the rest affect students' social interaction on campus?
4	How do you feel when you meet someone who feels that their academic performance is superior to yours because they come from a different province?
5	Despite these rumors, what do you think can be the real relationship between one's region of origin and their academic performance in public universities?
6	What do you think could be the personal factors that drive the performance of students who are exposed to the same environmental variables, such as the same school and socioeconomic factors?

were requested to mention their region of origin before they were to answer the main content questions. The main questions included whether they knew about rumors about some students performing better because they come from a particular region or ethnic group, what effects such rumors had on study-related behaviors of students from all the regions, what they thought were the variables of student performance, given similar school environment, how they feel when they meet someone who feels that their academic performance is superior to theirs because they come from a different province, or how they feel when they heard that their academic performance is superior to those from different regions/ethnic identity (Table 1). More questions were formulated based on the responses from the participants.

Study setting: The study was carried out in Malawi (Fig. 1, left), located between latitudes 9° and 18° South and between Longitudes 32° and 36° East, with three administrative regions [58,59] (Fig. 1, right).

Malawi has varying regional population densities and geographical sizes: NR (84 persons per square kilometer), CR (211 persons per square kilometer), and SR (244 persons per square kilometer) [58,60].

2.1. Sampling participants for the survey

Out of the top 8 public universities (Pala, Madika, Chanol, Mzumara, Drakes, Nuggets, Mackerel, and Rustenburg, all these are pseudo names for the sampled universities) situated across the country, we randomly sampled 6 universities (Chanol, Mzumara, Drakes, Nuggets, Mackerel, and Lusterburg) to solicit data from. The researchers identified the HE institutions through the National Council for Higher Education, a government regulatory body responsible for assessing and accrediting HE in Malawi. Out of these 6 sampled universities, only two public institutions (Chanol and Mzumara) opted not to return any data, as participation was voluntary. Because some private institutions offer substandard services, with substandard systems and structures [61,62], we excluded all private

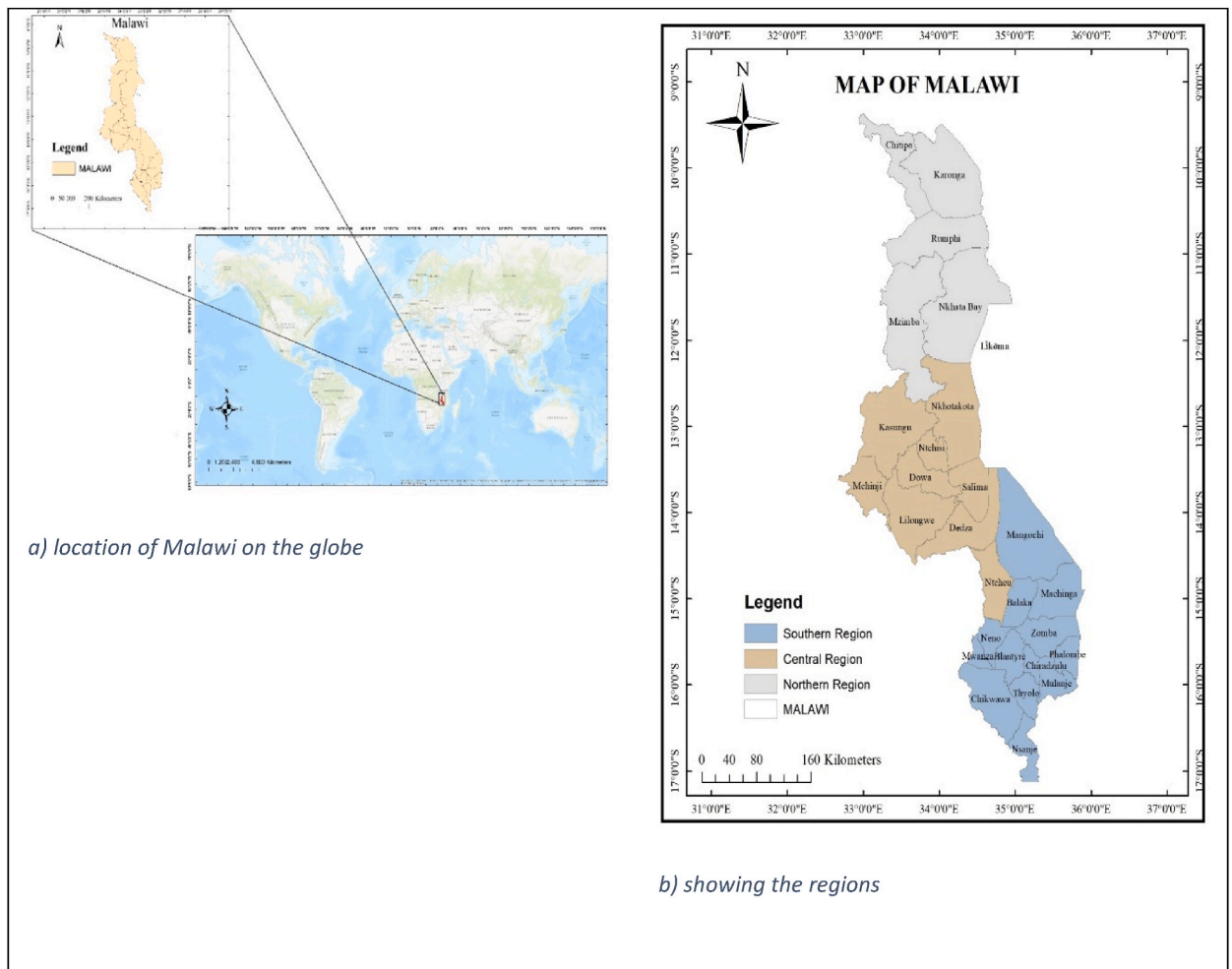


Fig. 1. Illustrates Malawi's position and size and the study's geographical location, the three regions, and their related sizes. We sampled the target institutions from each of these three regions.



Fig. 2. How student mindset impacts students' AP.

institutions from the sample for data reliability, quality, and fidelity (This means that all private institutions were not consulted right from the sampling stage).

2.2. Sampling participants for the interviews

Regionalism and ethnicity are hot and sensitive issues among Malawians. We recruited participants for the semi-structured interviews through convenient and purposeful sampling. For convenience, we looked for students available at the university campuses during the interview. Since it was not easy to identify students by their home regions (HR) merely by meeting them and being conscious of the probability of others faking their identity due to the contentions surrounding the ethnically related beliefs about academic superiority and regionalism, we used a non-probabilistic linear chain-referral sampling approach to identify the respondents for the qualitative data collection. This purposefully facilitated a deliberate choice of participants representative of each region instead of random sampling, avoiding a sample dominated by one region.

Before processing the data for analysis, an effort was made to ensure that the data were as precise and consistent as feasible. The process of repairing and removing erroneous entries from a database or table is known as data cleaning or cleansing [63]. Data cleaning or cleansing generally involves identifying and replacing incomplete, inaccurate, irrelevant, or problematic data and records [64]. Dirt in the data included duplicate or identical records, conflicting data entries, such as when identical records have distinct properties, and unwanted data, such as that of international students. There was one institution that was not yet using the GPA system. As such, data from such an institution was converted to GPA using the same scale used by the other universities.

After data scrubbing, we excluded 763 entries because they contained incomplete data due to some students withdrawing. Such entries had some crucial data missing, such as grades for one semester and information about the student's home district, whether due to human error, data corruption, or otherwise, leading to incomplete databases. To match data with objectives, we filtered out all international students' data ($n = 32$), all data for the diploma ($n = 3$) and master's ($n = 291$), remaining with undergraduate Malawian students' records only. We also discarded all the 72 data entries for Ph.D. partly because Ph.D. student performance is often not in the form of a Grade Point Average (GPA) [65]. Besides, the undergraduates' performance challenges usually differ from those of post-graduates. In total, 1172 students' data were excluded. Excluding such data minimized the impact of potentially unrecognizable confounding mediator variables.

All the institutions are co-educational- meaning they admit both males and females. Drakes is a higher education institution in the Southern Region, while Nuggets is in the Central. All the students have been pursuing a degree in education for four years. Much as the students have subject combinations, they all graduate with a degree in education. Drakes provided data for 932 students, with 25.1% (234) from the NR, 29.2% (272) from the CR, and 45.7% (426) from the SR. Of these, 57.7% (538) were males, and 42.3% (394) were females. Nuggets provided data for 661, of which 22.2% (147) were from the NR, 35.2% (233) from the CR, and 42.5% (281) from the SR. Nuggets University had the smallest enrollment among all the data points.

Mackerel is in the SR, with various majors, dominated by science and technology programs. It provided data for 1926 students, out of which 21.9% (421) were from the NR; 36.1% (696) were from the CR, and 42% (809) were from the SR. Of these, 56.1% (1080) were

Table 2

Demographic summary of the data source institutions. There were four institutions, with Rustenburg having the highest participant data.

Institution	Year of Study		Region				Gender						
		Freq	%	NR	%	CR	%	SR	%	Male	%	Female	%
All institutions by year of study	1st	1138	5.6	221	19.4	440	38.7	477	41.9	739	64.9	399	35.1
	2nd	1454	7.2	331	22.8	510	35.1	613	42.2	1049	72.1	405	27.9
	3rd	7745	38.2	1855	24	2931	37.8	2959	38.2	2837	36.6	4908	63.4
	4th	5612	27.7	1414	25.2	2207	39.3	1991	35.5	1968	35.1	3644	64.9
	5th	4315	21.3	1027	24.9	1668	38.7	1571	36.4	2727	36.8	1588	63.2
All institutions	N	20,264	100	4897	24.2	7756	38.3	7611	37.6	13,067	64.5	7197	35.5
Drakes	All	932		234	25.1	272	29.2	426	45.7	538	57.7	394	42.3
Nuggets	All	661		147	22.2	233	35.2	281	42.5	360	54.5	301	45.5
Mackerel	All	1926		421	21.9	696	36.1	809	42.0	1080	56.1	846	43.9
Rustenburg	All	17,591		4257	24.2	6869	39.0	6465	36.8	11,088	63.0	6503	37.0

males, and 43.9% (846) were females. Located in the Central Region, Rustenburg has the largest enrollment and provided data for 17,591 students, of which 24.2% (4257) were from the NR and 39% (6869) were from the CR, respectively, and 36.8% 6465 were from the SR. Unlike Drakes and Nuggets, Rustenburg is predominantly a science-based university with multiple specializations. 63% (11,088) of participants from Rustenburg were males, while 37% (6503) were females, refer to [Table 2](#).

2.3. Thematic analysis

The interviews were to expedite the transcription process for semi-structured interview data. We utilized Descript, an automated transcribing service, a tool that uses Google's auto-translate API for automatic transcription. Even though the transcription using Descript needed substantial modification because it was not flawless, it significantly increased the overall pace of transcription compared to the previous method. It was more effective to amend incorrect copies than to transcribe our interviews from scratch. After that, we imported the transcripts into NVivo 12 for inductive semantic thematic coding, initial themes development, theme refactoring, and renaming the final set of themes. The inductive semantic thematic coding yielded 11 themes revised into the following 6: effort, tribalism, pride, hate, encouragement, and discouragement. These were further revised into three: students' mindset, immersion into the enlivening environment, and students' reflective practice. We presented the results as quotations under each theme.

2.4. Statistical analysis

Drakes University and Nuggets University offer a one-degree program, which is why their numbers are lower than those for Mackerel University and Rustenburg University, with multiple programs. Spearman correlation and Kruskal-Wallis tests were carried out in SPSS version 26. The region was the factor with $k = 3$, i.e., NR, CR, and SR, while AP GPA was the dependent variable. The researchers did the Kruskal-Wallis H Test at the institution level and all institutions together. Besides, the tests were carried out at these levels categorized by gender and year of study because studies indicate gender as a factor of AP [66]. Besides, we ran logistic regression with GPA as the dependent variable and gender, year of study, and region as predictors. The categorical variables "Year-of-study" (Frosh, Sophomore, Junior, Senior, and Repeater) and region were dummy re-coded (NR, CR, and SR) with multiple categories. For the year of study, the repeater dummy variable was used as the reference, while for the region variable, NR was the reference.

3. Results

The study sought to establish whether students subscribed to the claim that ethnicity determines performance in Malawian HE. We present the results of the semantic thematic data analysis, Spearman's correlation, Kruskal-Wallis test results, and regression.

3.1. Interviews results

Themes: Student mindset, immersion into the enlivening atmosphere, and engagement in reflective practice.

The interviews revealed inconsistencies in how students' mindsets influenced AP. Students were quick to opine that students' ethnic identity influences their mindset towards education-related behaviors, and this impacts their subsequent actions. [Fig. 2](#) indicates what is involved in student mindset.

They attributed any variation in performance to individual mindset, orientation, and social values, as quoted below:

I see no relationship between one's region and their performance perse. Only NR culture encourages hard work and ridicules failure (respondent K).

Many from the NR are educated because their culture favors participation in school and their parents value education (respondent D).

It was evident from the interviews that students' beliefs impact their education-related behavior. They indicated that such beliefs have a positive and adverse impact. One participant emphasized that since they believe they are capable, they see all reasons to be consistent with hard work. If they feel they come from a region with low academic performance, it will induce extreme feelings: (a) some will give up on working hard because they believe their performance is controlled externally by the region constraint, while (b)

others will apply more effort to level up with those with the advantage. The quotation below attests to this.

If I believe that I can, that self-esteem propels me forward the extra mile, unlike when I think I can't since I come from an unfortunate ethnic group or region (respondent A).

Since I know people from my region don't perform better than those from the other region, I see no reason to apply more effort. It doesn't motivate us to do so (respondent X).

Even if I don't apply that much effort, I know definitely some of these guys can't beat my performance (respondent Y).

Those guys perform well because they work hard. It's not that they are unique in any way. They just have academic self-discipline. Their mind tells them that failure is ridiculous. It follows why another participant said the following:

The truth is that each ethnic identity has its unique culture. Such cultures affect our attitude toward studies. For example, NR culture encourages hard work and ridicules failure (respondent K).

Many from the NR are educated because their culture favors participation in school, their parents value education, they have low divorce rates, and many families have a better economic stand (respondent D).

4. Immersion into the enlivening atmosphere

When students are immersed in any environment, their behavior is shaped by their experiences. Fig. 3 illustrates the elements of the enlivening atmosphere.

The environment they get immersed in, such as students' cultural values, how such values influence their subsequent decisions and the social groups they join, and also how they interpret their experiences. Those who perform better do so due to effort. At the same time, those who think there is a difference are only opinionated with regionalism/tribalism and therefore develop hate against the "better performers." The "best performer" region may develop extreme pride and confidence.

Both friendly and harsh encounters shape their affiliations, associations, and friendships, and groups for discussions and collaborative learning. The feelings they develop based on their beliefs and how the concerned students carry themselves determine whom they associate with. Students feel these rumors invoke a sense of pride in NR, hate from other regions, segregation and isolation, and hopelessness among the CR and SR. Tribalism featured highly (31 times by 12 respondents), effort (23 times by 9 respondents), pride (12 times by 11 respondents), and hatred featured 12 times and 8 respondents, respectively, discouragement (10 times by 9 respondents) and encouragement (9 times by 6 respondents). The following quotes indicate how students from the SR and the CR feel toward those from the NR.

They always don't want to speak our language; they're so proud (respondent A).

I hate them passionately because they are too proud, thinking they are more intelligent than everyone else (respondent B).

These people do not want to associate with other regions (respondent E).

I think associating with them will influence my academic performance positively (respondent H).

However, these sentiments are not among those from CR and SR only. Some from the NR also have similar feelings towards those from the SR and the CR.

It is hard to interact with people from those regions. They really make us feel out of place. They ridicule you anyhow and hate you with passion (respondent X).



Fig. 3. Elements of the immersion into the enlivening environment to understand how it impacts AP.

These people hate us because they know we are much better than them (respondent P).

I can't have a fruitful discussion with any of them (respondent W).

The above sentiment indicated that participants feel the rumor fuels tribalism, segregation, and hate: discussion groups are formed based on tribes, and inter-tribal discussion groups are rare.

5. Reflective practice

Students keep checking their performance against each other, checking their progress to ensure that those who believe they are better should keep topping the chart while those who underperform strive to level up. Fig. 4 is an illustration of elements of the reflective practice to help understand its impact on AP.

This hinders meaningful social learning, networking, social integration, and rich campus life experiences. Below are critical quotations from the interviews.

Students believe everyone is able, but when they underperform, they reflect on what caused the underperformance. They reflect on how they can improve. Interviews indicated that some students feel bad when they fail. The quotation below reveals this.

Everyone is intelligent, only that we apply different efforts (participant I).

When I noted that I wasn't among the top, I thought of how I could remain among the performers. I decided to apply extra effort (respondent Q).

Having noted that my colleagues from that region performed better than me, I reflected on my study habits and decided to follow their example (respondent P).

It is clear that from these quotes, students may improve their performance if they reflect on their practice and resolve their challenges by adopting positive strategies. The interviews also revealed that students believe that NR has the highest proportion of parents educated than the rest. They opined that such parents encourage their children to study hard and see the reason to support their education unwaveringly.

Unlike the CR and the SR, if parents are not so educated, they will not understand the need to support their children that much (respondent D).

After all, in the SR, the fathers do not care much about their children's future as they culturally and customarily don't have custodial rights over them. The kids belong to the mother, yet in many cases, the father is the breadwinner in such weak and financially underprivileged families. (participant J).

These results indicate that, on the one hand, some classmates from the other regions fear those from the NR because they feel they are not their match. On the other hand, some students believe AP is more about effort: While some insist that academic performance is all about one's environment, others opined that it is all about identifying the available opportunities and how to use them.

5.1. Statistical analysis

Spearman's rHO: Spearman's rHO revealed a very weak but statistically significant correlation between GPAs and region ($N = 20,264$, $r_s = -0.040$, $p < .000$) when grouped by gender (males $n = 13,067$, $r_s = -0.047$, $p < .000$; females $n = 7197$, $r_s = -0.035$, $p =$



Fig. 4. Elements of the reflective practice to understand how it impacts AP.

.003). When isolated by institution, only Rustenburg ($n = 17,591$) indicated a very weak statistically but significant negative correlation, $r_s = -0.046$, $p < .000$). When subcategorized by gender, Rustenburg results showed very weak but statistically significant negative correlations, $n = 11,088$, $r_s = -0.058$, $p < .000$ for males, and $n = 6503$, $r_s = -0.027$, $p = .030$ for females. Nuggets results showed a weak but statistically significant correlation between AP and region among females ($n = 301$, $r_s = -0.119$, $p = .038$). See Table 3 for details.

5.2. Kruskal-Wallis Test results

A Kruskal-Wallis Test for all institutions showed statistically significant differences between the groups, $H(2) = 34.071$, $p < .001$. The following table (Table 4) is a summary of the Kruskal Wallis Test results for all the institutions.

Pairwise comparison indicated statistically significant differences between SR and CR, $H(2) = 216.040$, $p = .022$; SR and NR, $H(2) = 624.486$, $p < .001$; and CR and NR, $H(2) = 408.447$, $p < .001$ (Fig. 5a and b).

Grouping all students by gender (males $n = 13,066$, females $n = 7197$), the Kruskal-Wallis H test indicated statistically significant differences between the groups: $H(2) = 6.867$, $p = .032$ (Fig. 6a) for females, and $H(2) = 35.113$, $p < .001$ (Fig. 6c) for males. While pairwise comparison among the males showed no statistically significant differences between SR and CR, $H(2) = 101.810$, $p = .177$, there were statistically significant differences between SR and NR, $H(2) = 501.710$, $p < .001$, and CR and NR, $H(2) = 399.900$, $p < .001$ (Fig. 6b) for males.

While for females, there was no statistically significant difference between CR and NR ($H(2) = 36.809$, $p = .557$); there was a statistically significant difference between SR and CR, $H(2) = 114.842$, $p = .043$, and SR and NR, $H(2) = 151.652$, $p = .016$ (Fig. 6d).

5.3. Categorized by the year of study

Results for the females from all the universities indicated a statistically significant difference only among YR 5, $H(2) = 6.677$, $p = .035$ (Fig. 7j). The pairwise comparison for groups of females in YR 5 revealed a statistically significant difference between SR and CR, $H(2) = 66.841$, $p = .012$ (Fig. 7k). Similarly, the males indicated a statistically significant difference only among YR 3, $H(2) = 18.222$, $p < .001$ (Fig. 7e). Pairwise comparison for YR 3 males showed a statistically significant difference between SR and NR, $H(2) = 227.591$, $p < .001$, and between CR and NR, $H(2) = 159.389$, $p = .003$ (Fig. 7f).

Results for the females in YR 1, $H(2) = 4.279$, $p = .118$ (7a); YR 2, $H(2) = 3.862$, $p = .145$ (7c); YR 3, $H(2) = 2.456$, $p = .293$ (7 g) and YR 4 $H(2) = 0.715$, $p = .699$ (7 h) showed no statistically significant differences between the groups. Results for the males in YR 1, $H(2) = 5.130$, $p = .077$ (Fig. 7b); YR 2, $H(2) = 2.269$, $p = .322$ (Fig. 7d); YR 4, $H(2) = 2.042$, $p = .360$ (Fig. 7i); and YR 5 $H(2) = 2.967$, $p = .227$ (Fig. 7l) showed no statistically significant results. Fig. 7a (a-f) and 7b (g-l) illustrates Kruskal Wallis test results and relevant pairwise test results for all institutions, with participants categorized by gender and year of study.

6. Discussion

The study sought to understand the relationship between HE students' region of origin and their AP in Malawi and how beliefs about one's region of origin impact one's academic performance in the light of ToP. The results showed inconsistencies among academic performance when the sample was categorized using different grouping criteria. The students react to the belief differently, which mostly adversely impacts their studies. Cultural values associated with the three distinct ethnicities/regions considerably impact university students' education-related behaviors, which impact their academic performance. Much as the study findings that ethnic identity was not found to be statistically significant corroborate extant studies [67–69], this factor was found to be a positive correlate of GPA [69,70].

Identifying oneself with a particular ethnic grouping usually makes one subscribe to the values of such a group. Such values may influence parents' attitudes toward educational objectives for their children [71] and their children's educational performance.

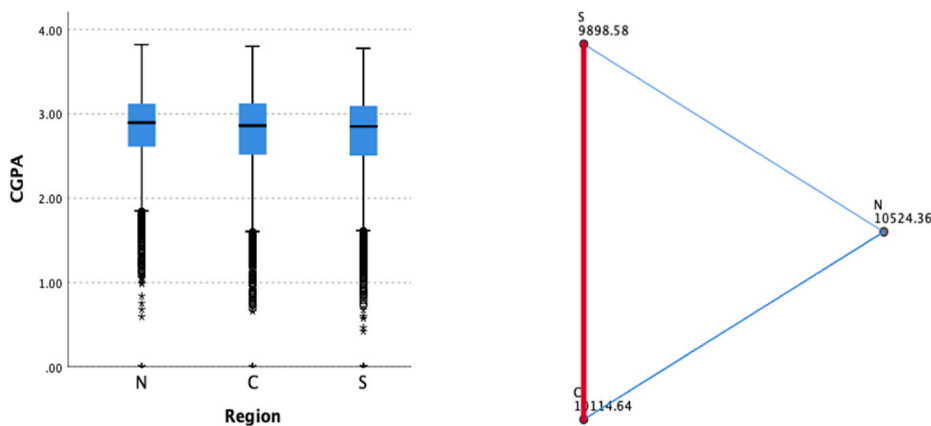
Table 3
Spearman's rho Correlation results.

Spearman's rHo		Region	
		r_s	Sig. (2-tailed)
All institutions, N = 20,263	CGPA	-.040**	.000
All institutions males, n = 13,067	CGPA	-.047**	.000
All institutions females, n = 7197	CGPA	-.035**	.003
Drakes all, n = 932	CGPA	-.059	.073
Drakes males, n = 538	CGPA	.064	.137
Drakes female, n = 394	CGPA	-0.066	.188
Nuggets females, n = 301	CGPA	-0.119	.038
Nuggets males all	CGPA	-.016	.763
Nuggets all, n = 661	CGPA	-.059	.132
Rustenburg all, n = 17,591	CGPA	-.046	.000
Rustenburg males, n = 11,088	CGPA	-.058	.000
Rustenburg female, n = 6503	CGPA	-.027	.030

Table 4

Independent samples Kruskal Wallis test results (double-tailed) between groups. “Sam” means the “sample,” and “F” means “female.” N means Northern Region, S means Southern Region and C means Central Region. All the significance values were adjusted by the Bonferroni correction for multiple tests.

		Pairwise comparison						Kruskal-Wallis H			Mean	
		Sam 1-Sam 2	T-Stat	Std. Error	Std.T-Stat	Sig.	Adj. Sig	N	T-Stat	Sig		
All students		S-C	216.040	94.378	2.289	.022	.066	20,263	34.071	.000	2.79	
		S-N	624.486	107.165	5.827	.000	.000					
		C-N	408.447	106.772	3.825	.000	.000					
Males	All	S-C	101.810	75.352	1.351	.177	.530	13,066	35.113	.000	2.81	
		S-N	501.710	86.810	5.779	.000	.000					
		C-N	399.900	86.559	4.620	.000	.000					
	Grouped by study year	YR 3	S-C	68.203	45.958	1.484	.138	.413	4908	18.222	.000	2.64
			S-N	227.591	53.511	4.253	.000	.000				
			C-N	159.389	53.656	2.971	.003					
		YR 4						3644	2.042	.360	2.95	
		YR 5						2727	2.967	.227	3.05	
Females	All	S-C	114.842	56.849	2.020	.043	.130	7197	6.867	.032	2.75	
		S-N	151.652	62.977	2.408	.016	.048					
		C-N	36.809	62.650	0.588	.557	1.00					
	Grouped by study year	YR 1						399	4.279	.118	1.94	
		YR 2						405	3.862	.145	2.63	
		YR 3						2837	2.456	.293	2.59	
		YR 4						1968	.715	.699	2.94	
		YR 5	S-C	66.841	26.529	2.520	.012	.035	1588	6.677	.035	3.05
			S-N	49.841	29.998	1.661	.097	.290				
			C-N	-17.000	29.603	-0.574	.566	1.00				



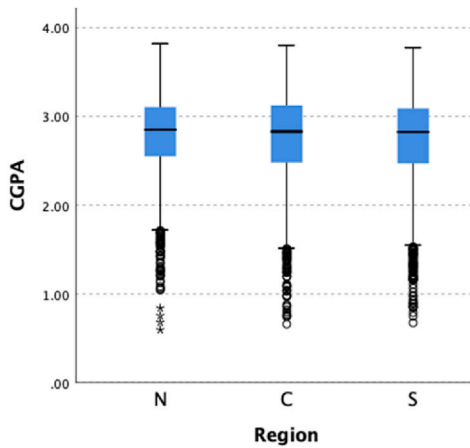
a) Kruskal Wallis test results showing statistically significant differences between samples for all students, without any grouping criterion

b) pairwise test results for all students, without any grouping criterion, indicating statistically significant differences between SR and CR; SR and NR; and CR and NR.

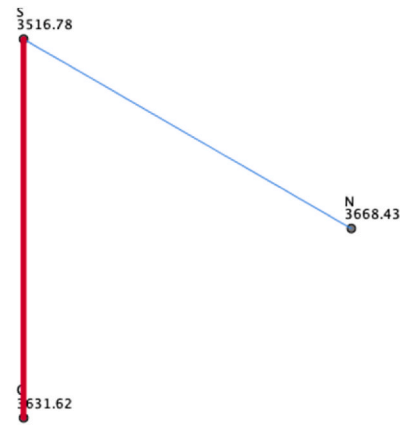
Fig. 5. Shows the results of all institutions together. It illustrates the statistically significant differences between samples. Pairwise comparison results indicate statistically significant differences between groups.

Consequently, specific differences in educational performance between racial or ethnic groups may stem from their respective cultural values [71,72]. Several elements of the specific cultures of ethnic groups (such as religion, language, and family values) may influence students’ educational performance in a variety of ways (e.g., educational value, choices between whom to support for further education, between a boy and a girl [71]. Given the diversity of ethnic groups in Malawi, it is essential to consider how each group’s unique history may influence children’s educational performance [71]. Findings from the interviews that, contrary to the CR and the SR, have a long history of a culture that encourages hard work, which is why they perform better, align with Elger’s notions of the performer’s mindset, immersion in an enlivening atmosphere, and reflective practice corroborate previous research by Spencer, Noll, Stoltzfus, and Harpalani (2001), and consistent with other studies that found that students’ ethnicity can affect their academic performance [73].

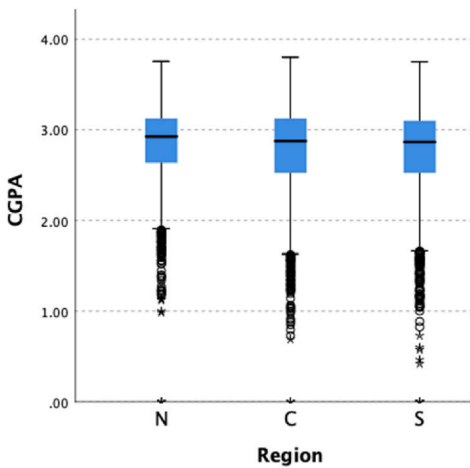
The study revealed that given that values related to education, such as valuing effort, praising success, rebuking failure, etc., and the likelihood of their eventual social mobility will likely be instilled in them during their childhoods, specifically through the



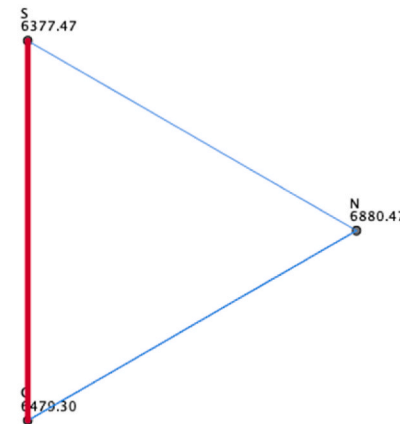
a) Kruskal Wallis test results for all females (from all institutions together), showing statistically significant differences between groups.



b) Pairwise test results for all females (from all institutions), indicating statistically significant differences between SR and CR, and SR and NR.



c) Kruskal Wallis test results showing statistically significant differences between groups for males from all institutions together.

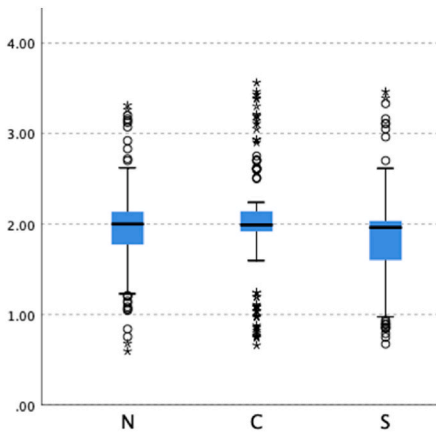


d) pairwise test results for males showing statistically significant differences between SR and NR, and CR and NR from all institutions.

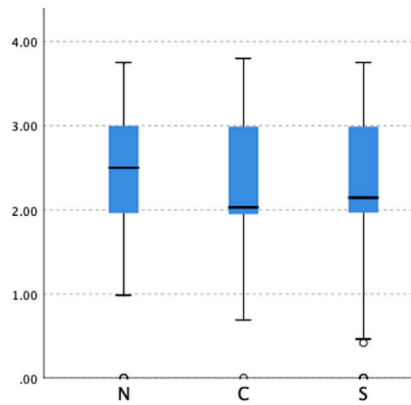
Fig. 6. (a–d) The Kruskal-Wallis H test for all the institutions together indicated statistically significant differences among the groups categorized by gender.

parenting practices within their families, it is essential to gain a better understanding of the differences between ethnic groups in this regard. Students’ opinions that belong to an ethnic group with a particular set of educational achievement values partly explain the variations in performance among these regions. The findings are consistent with extant literature indicating that significant relationships exist between an ethnic educational institution and peer group membership and academic achievement [68]. Besides, Estela Zarate et al. found that a cultural dimension of ethnic identity was a significant academic performance predictor [74]. However, no specific ethnic label was associated with academic performance conclusively. Numerous researchers have noted the potential impact of ethnic differences on cultural values, particularly regarding the evaluation of educational achievement [75]. Others have postulated similarly that ethnic differences in cultural values and beliefs may influence students’ academic success via achievement-related socialization practices [72].

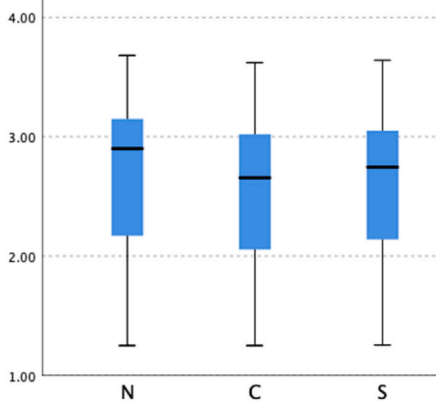
Our findings show a weak correlation between the region and AP. However, the results illustrate that no single region dominates. The results are not constant as one progresses through the years. The variance is not uniform and not featuring a particular region being different from the rest. Therefore, we fail to reject the null based on the year of study. Likewise, differences based on gender are not



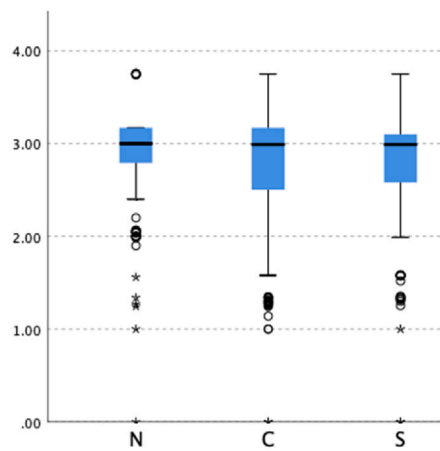
a) Kruskal Wallis test results for all YR 1 females showing no differences among females



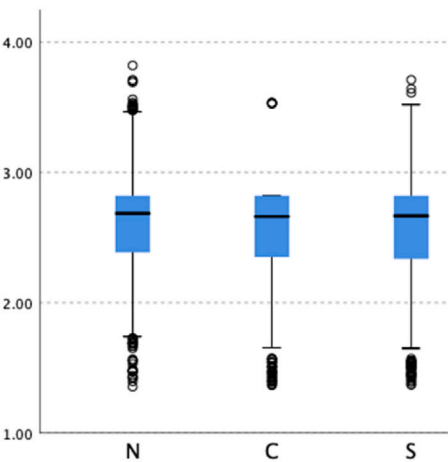
b) Kruskal Wallis test results for all YR 1 males showing no differences among males



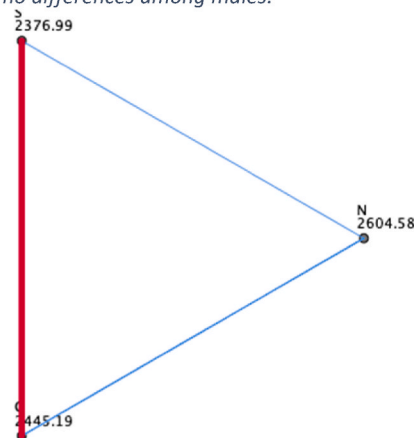
c) Kruskal Wallis test results for all YR 2 females showing no differences among females.



d) Kruskal Wallis test results for all YR 2 males showing no differences among males.

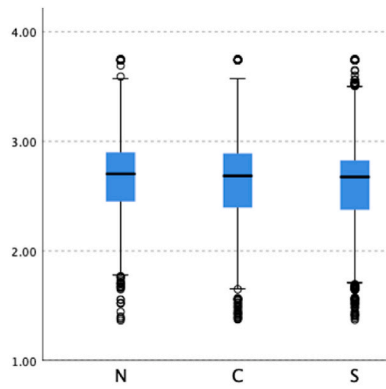


e) Kruskal Wallis test results for all YR 3 males showing differences between groups among Year 3 males

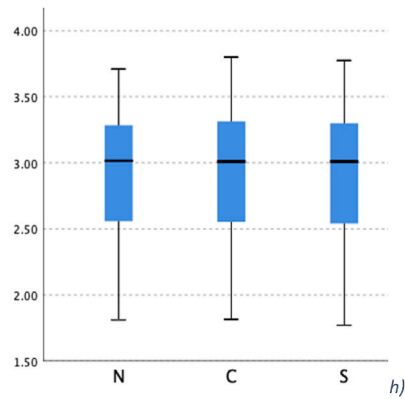


f) Pairwise comparison showing a statistically significant difference between SR and NR, and between CR and NR for all Year 3 males

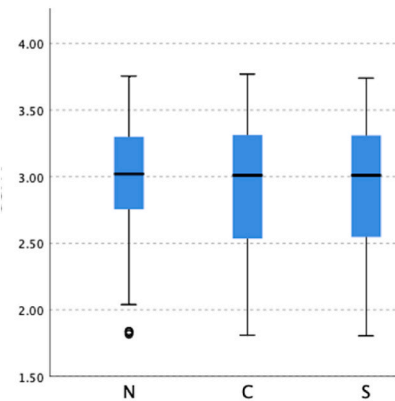
Fig. 7a. (a–f) Results for the females from all the universities indicated a statistically significant difference only among YR 5. Similarly, the males from all the universities indicated a statistically significant difference only among YR 3. The participants were grouped by gender and year of study.



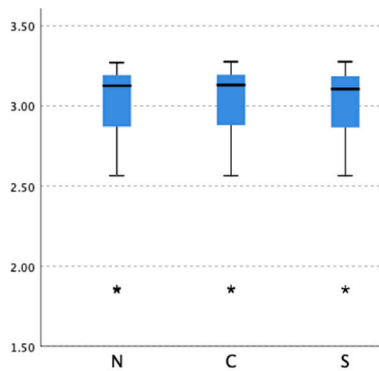
g) Kruskal Wallis test results for all YR 3 females showing no differences between groups among Year 3 females



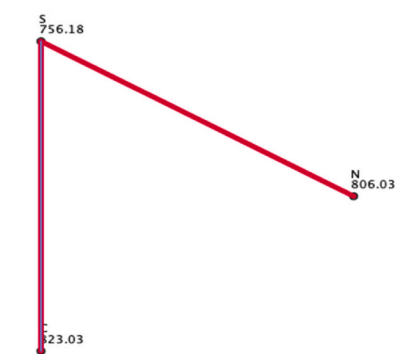
h) Kruskal Wallis test results for all YR 4 females showing no differences between groups among Year 4 females



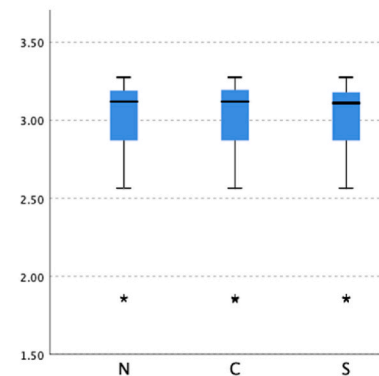
i) Kruskal Wallis test results for all YR 4 males showing no differences between groups among Year 4 males



j) Kruskal Wallis test results revealing a statistically significant difference between groups for females in Year 5



k) pairwise results comparison revealing a statistically significant difference between SR and CR for females in Year 5



l) Kruskal Wallis test results indicating no statistically significant differences between groups among males in Year 5

Figure 7(a-l) Results for the females from all the universities indicated a statistically significant difference only among YR 5. Similarly, the males from all the universities indicated a statistically significant difference only among YR 3. The participants were grouped by gender and year of study.

Fig. 7b. (g–l) Results for the females from all the universities indicated a statistically significant difference only among YR 5. Similarly, the males from all the universities indicated a statistically significant difference only among YR 3. The participants were grouped by gender and year of study.

constant among these three groups. Therefore, neither gender difference nor the year of study guarantee differences between the groups. We attribute these inconsistencies to the environment due to social learning as students from other regions mingle with those who value positive educational habits such as hard work. The performer's mindset changes as they get immersed in an atmosphere that helps some emulate reflective practices. Studies indicate that academic achievement highly depends on the relationships between educational experiences, social integration, and social mobility [71]. Alva's (1993) central argument is that academic success is influenced by the relationship between cultural values and practices and values and practices [76]. Our results from the interviews corroborate extant literature [71,76]. For instance, participants emphasized the role of effort over ability in academic performance, given a conducive non-cognitive environment. Ecological and structural factors inter alia, such as perceived educational climate, emotional intelligence, adjustment, self-efficacy, and study habits, mediate AP [77,78]. Our findings align with extant studies about factors of performance [36–42,45].

On the other hand, the NR had the rare resources and the capability to capitalize on the solid cultural capital and expenditure per capita but lacked a sustainable political backup plan as the country never had a president from the region to exercise political will for the region. Much as literacy may be a precursor to school participation and a prerequisite to academic performance, it should not be conflated with academic performance. The interviews established that Malawi's educational history, performance, and literacy levels date back to the colonial period when more academic and vocational institutions were established in the NR than in the CR and SR, corroborating extant studies on the same [19], whose proximity enhances positive education and performance behaviors [15,49,50]. The academic environment created by the availability or lack of appropriate infrastructure impacts students' attitudes toward education.

The difference in family structure among these regions also has contributed to the differences in performance. Family structure determines whether the environment the students are immersed in is conducive to success. The interviewees lamented that contrary to the patrilineal family structure in the NR, CR and SR suffered weak matrilineal family structures associated with a higher divorce rate and remarriage, leaving many female households with less economic power to support students. Besides, divorced mothers care about their marital status more than about the future of the kids of an irresponsible X-spouse, leaving children in the hands of non-biological parents too overwhelmed by other responsibilities to mind about the kids' education. Our findings align with a plethora of literature suggesting that, when mediated by other economic factors, family structure, and per capita expenditure [17,46,47], family structure [8,19,20,40,51,52].

Moreover, through the interviews, we established that the proportions of educated parents vary significantly among these regions. Students lamented that if parents are less educated, they do perceive the need to support their children's education. Our findings are consistent with extant literature on the role of parental level of education in students' AP and school participation [21,22]. Parental education affects AP more than their occupation [79]. It facilitates students' self-confidence and self-concept, contributing to the immersion in a conducive and enabling environment, as opined in the ToP [80,81].

7. Conclusion and recommendations

The study sought to explore the nature of the association between university students' HR and their AP through the ToP lens. The study was initiated due to the countrywide myths, beliefs, and speculations that flooded HE campus discussions, social media, national press, and other communication forums powerful enough to influence public opinion about the NR comprising students with higher AP than the rest. Our findings controverted the belief that NR students performed statistically significantly better than all others. Therefore, we failed to reject the null hypothesis. These results are consistent with extant studies about academic performance and education levels across nations [82]. We also found the environment the students are immersed in at home and at school, the performer's mindset, immersion in an enlivening atmosphere, and reflective practice mediate their academic behavior and AP. NR culture lessens divorce, cherishes education and effort, and not that they are born better performers. The study recommends that all students pay attention to their school-related behaviors and social associations to minimize preventable academic underperformance.

Limitations to this study include sampling. The sample was not from all the universities. Different universities operate in various social and political environments. Such differences may be crucial in determining variances in performance. We need a similar study in private HE institutions and find how these beliefs impact teachers and parents across the country because studies about ability and performance across groups need considerable evidence to determine the scientific truths about a hypothesis [25].

Author contribution statement

Lazarus Obed Livingstone Banda: Conceived and designed the experiments; Performed the experiments; Wrote the paper.

Jin Liu: Performed the experiments; Contributed reagents, materials, analysis tools or data.

Jane Thokozani Banda: Analyzed and interpreted the data.

Wenhui Zhou: Contributed reagents, materials, analysis tools or data.

Data availability statement

The data that has been used is confidential.

Additional information

Supplementary content related to this article has been published online at [URL].

Declaration of competing interest

The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e16767>.

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