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Editorial:
Ethics and Research-Focus Politics in Higher Education

There has been growing concern for ethical conduct in higher education due to several reasons. Massification in higher education, quantitative-oriented output measures, and the pressure on academics to publish are commonly indicated as the core reasons behind ethical violations. In addition to these reasons lack of instructive measures and limited research to inform these instructive measures can be counted as factors contributing to the rise of ethical violations in the academy. Like the case of lower levels of education, higher education is also a value-driven field of conduct. Although recent scholarly concerns focus on ethical conduct in research and publication ethics, teaching in higher education demands equal attention. Research on ethics in various conducts of higher education institutions including teaching, research, and publication processes is important to guide the students, academics, and institutions for ethical conduct.

In this issue of HEGP, the first article titled "Plagiarism Awareness and Practices Engagement: Evidence from Adeleke University Basic Medical Sciences Undergraduate Students" by Makinde, Olatunji, Ogunniran and Makinde investigated the relationship between plagiarism awareness level and plagiarism practices engagement level by medical sciences undergraduate students. In their investigations, the authors documented the reasons behind plagiarism as well. The study documented several possible reasons behind plagiarism in medical education. The time pressure to return the assignments and problems in accessing information are the key factors causing plagiarism in medical education, according to the study. These results suggest a similar logic with ethical violations in research and publication ethics. Interestingly the study suggested that the students are knowledgeable about the types of plagiarism. The second article of this issue, titled "Establishment Policies of Research Universities: A Critical Analysis of Global and Turkish Perspectives" by Ozsoy and Balyer investigated the research university initiative in Turkey based on a critical literature review and document analysis. The analysis focused on the values and practices underlining the research university initiative in Turkey. The study documented the need to clarify the research university mission and deploy the necessary resources to give momentum to the research university initiative.

We expect that the articles on this issue will contribute to higher education research and practice.

Yasar Kondakci
    Editor

Plagiarism Awareness and Practices Engagement:
Evidence from Adeleke University Basic Medical Sciences Undergraduate Students

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Abstract

Plagiarism is of great concern in diverse fields of human endeavour, including the basic medical sciences, especially with many trained undergraduates after degree completion venturing into academics where they need to publish. The purpose of the study was to examine the relationship between plagiarism awareness level and plagiarism practices engagement level by basic medical sciences undergraduates including determining types of and reasons for plagiarism. The study covered all 316 basic medical sciences undergraduates in five academic departments of a foremost private institution in South-West Nigeria. The study adopted a survey research design. Data were collected through a structured questionnaire. A total population sampling technique was used to examine the respondents based on inclusion criteria (faculty and academic level) and exclusion criteria (inability to provide informed consent and incomplete questionnaire filling). This technique was employed because the target group was manageable and had well-defined characteristics. In all, 296 usable copies of the questionnaire were found worthy of being analysed. Descriptive and inferential statistics were used for data analysis. Descriptive statistics such as frequency count, percentage, mean and standard deviation scores were employed. Inferential statistics – Spearman's rank correlation was also adopted. This technique was used because the study phenomena were ordinal levels of measurement and not normally distributed. The study's result showed that the students know about all the listed plagiarism types and they mostly cited the pressure to turn in written assignments/works, followed by timely access to information to meet deadlines and then the deadline to turn in group work as reasons for plagiarism. Further findings revealed evidence of a statistically significant, moderate strength monotonic and negative correlation between plagiarism awareness level and plagiarism practices engagement level.

Keywords: Basic medical sciences undergraduate students, Plagiarism, Plagiarism awareness level, Plagiarism practices engagement, Plagiarism types

Introduction

There have been many definitions of plagiarism with most of them acceding that it is on the grounds of the wrong use of other people's words and ideas (Selemani et al., 2018). In line with the European Network for Academic Integrity [ENAI] (2022), plagiarism is 'The use of ideas, content, or structures without appropriately acknowledging the source in a setting where originality is expected, leading to unfair advantage.' In addition, the World Association of Medical Editors [WAME] (2023) describes plagiarism as the use of others' published and unpublished ideas or words (or other intellectual property) without attribution or permission while presenting them as new and original rather than derived from an existing source - the intention and outcome of plagiarism misinform the reader regarding the plagiariser's contributions. Ellis et al. (2018, p. 1) also consider plagiarism as the practice of "presenting someone else's words and/or ideas as your own without appropriate attribution." The desire for academic improvement and progression by individuals compels them to take shortcuts and deceivingly receive credit (Varghese & Jacob, 2015). Students in the attempt to obtain an unethical advantage in

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their academic undertakings meant for assessment get involved in academic dishonesty or misconduct (Tee & Curtis, 2018). The aforementioned definitions show that plagiarism is a critical academic drawback depicting students' information illiteracy and damaging the extent to which any student can learn in the course of study.

Plagiarism is of great concern in diverse fields of human endeavour (Mukasa et al., 2023), including the basic medical sciences (Ismail, 2018; Lynch et al., 2017), especially with many trained undergraduates after degree completion venturing into academics where they need to publish. It is one of the three prominent breaches in academics and research, followed by fabrication and falsification (Varghese & Jacob, 2015). The occurrence of plagiarism is on the increase, particularly with the invention of the Internet making information effortlessly available and accessible without many physical hindrances allowing students and researchers access to various documents the world over (Levine & Pazdernik, 2018; Üney, 2023). In agreement, many contemporary authors have expressed that the upsurge in the cases of plagiarism in universities is alarming, especially with advancements in technology [including mobile electronic devices] plus the Internet (Dawson, 2020; Kay et al., 2022; Khan et al., 2021; Lynch et al., 2022; Tee & Curtis, 2018). Various reports have corroborated the preceding statements in Australia (Belot 2016), India (Shakeel et al., 2021) and UK (Marsh, 2017) and Africa – South Africa (Griffiths, 2017; Ramoshaba & Cloete, 2019; Verhoef & Coetser., 2021) and in Nigeria (Nordling, 2018; Nwosu & Chukwuere, 2020).

According to Dhammi and Haq (2016), there are various forms of plagiarism encompassing: (1) cyber plagiarism – the copying or downloading partly or in totality articles or research papers and ideas from the Internet and not giving proper attribution (Jawad, 2013; Omonijo et al., 2017); (2) image plagiarism – the use of image or video without receiving proper permission or providing appropriate citation; (3) mosaic plagiarism – this is when each word is not copied, however, ones words are mixed with the ideas and opinions of another (Jawad, 2013) – in a spasmodic manner; (4) paraphrasing – this is rewriting any part/paragraph of an original manuscript in one's word, despite being a restatement, the manuscript must be referenced; (5) self-plagiarism - this refers to the practice of authors using portions of their previous writings on the same topic in another of their publications, without specifically citing it formally in quotes (WAME, 2023) – it could vary from augmented publication, duplicate (redundant), segmented publication to text-recycling types; and verbatim plagiarism – this is when an author submits exactly someone else's words in his/her own name without due acknowledgement.

Several studies have drawn attention to some fundamental factors being determinants of students plagiarising and listing factors such as academic pressures, competition, fear of failure, inadequate ideas, lack of confidence, lack of policy intervention, limited skills, social and inadequate language skills and time constraints (Abbasi et al., 2020; Cleary, 2017; Farahian et al., 2020; Hopp & Speil, 2021; Husain et al., 2017; Jereb et al., 2017; Memon & Mavrinac, 2020; Moss et al., 2017). However, as observed from existing studies, a major factor affecting plagiarism among students is an unclear understanding of what it is and how it can be avoided pointing to a lack of knowledge that could also be termed scanty awareness (Abbasi et al., 2020; Bašić et al., 2018; Elshafei & Jahangir, 2020; Howard & Davies, 2009; Memon et al., 2019; Murtaza et al., 2013; Power, 2009). Awareness involves knowledge about an object or event (Reinhardt et al., 2015). To a large extent, awareness is expected to influence an individual's reasoning and exploitation of any academic object. Considering aforesaid studies, perhaps supported by Orim et al (2013) who investigated Nigerian engineering students at home and abroad where findings showed that most plagiarism cases happened due to a lack of awareness. Can we say that: (1) is this also the case for basic medical sciences undergraduates? (2) is there any relationship between plagiarism awareness (independent variable) and engagement in plagiarism (dependent variable)? These, alongside other factors, need to be researched because of their dearth in academic literature.

We hypothesised that the respondents plagiarise due to their being unaware of the various issues about plagiarism and that unawareness extends the act of plagiarism perhaps leading to increased engagement in plagiarism practices. In light of the research gap identified, we formulated five research questions to help answer the research problem as follows:

1. What are the plagiarism types known to basic medical sciences undergraduates of Adeleke University?
2. What is the plagiarism awareness level of basic medical sciences undergraduates of Adeleke University?
3. What are the reasons for plagiarism by basic medical sciences undergraduates of Adeleke University?
4. What is the level of engagement in plagiarism practices by basic medical sciences undergraduates of Adeleke University?
5. What is the correlation between plagiarism awareness level and plagiarism practices engagement level by basic medical sciences undergraduates of Adeleke University?

Literature Review

In a survey carried out by Habib et al. (2021) on dental students, the students had good knowledge and awareness of the importance of violations of professionalism relating to academic honesty and that professional errors regarding academic honesty should not be ignored. This is a demonstration that students appreciate a supportive academic environment. Hence, an academic environment that promotes professional development is associated with high academic integrity. Juyal et al. (2015) emphasised that scientists as authors are people of ethical standards and must be aware that any form of academic dishonesty including plagiarism can tarnish their image severely. However, they observed that the production of original analysis and interpretation of research are harder with the easy availability of information online. Hence, the ease of copy-paste plagiarism and inappropriate reuse of sources bordering on digitalisation does not help science. In support of the preceding claims, a Nigerian study by Babalola (2012) focusing mostly on medical undergraduates demonstrated that the abundance and ease of accessing information materials from the Internet are responsible for low plagiarism understanding and the disposition to unintentional plagiarism. Similarly, Jereb et al. (2018) found that German and Slovene higher education institution students of different disciplines equally indicated the ease of use of ICTs and the Web as the topmost cause for plagiarising. These findings suggest that the ongoing revolution in the availability of academic electronic information online such as open access if not properly managed may not assist students in achieving quality in assignments and research. Consequently, students must be continuously taught and trained to appreciate the long-term effect of plagiarism on themselves in terms of self-development and society at large.

Babalola (2012), in his study covering undergraduates of different disciplines and levels, revealed the reasons for plagiarism to be the need to pass with good grades, the inability to cite internet sources correctly and the least was the inability to search the library for materials. Idiegbeyan-Ose et al. (2016), however, mentioned the pressure to meet deadlines and inadequate writing skills as reasons for plagiarism. The indulgence in plagiarism could be due to ignorance, oversight, and deficient training in ethical scientific writing (Juyal et al., 2015). In another study, Singh and Guram (2014) highlighted that increased plagiarism is associated with pressure to publish and the lack of essence of writing in English. Jereb et al. (2018) also cited that for German students, pressure (relating to faculty, family, fear of failure, job, money, peers, and stress) and a sense of satisfaction with one's work were the two uppermost factors affecting plagiarism. However, they refuted that plagiarism was not associated with teaching factors. In a USA study, Yu et al. (2016) uncovered concerning higher education undergraduates as regards academic misconduct (cheating) that lack of self-control was positively associated with student academic cheating. Students with a career focus were also more likely to be engaged in academic misconduct, whereas students with a non-career focus were less likely to do so. The study also found that the student's perception of the cheating environment was positively associated with academic misconduct. These studies show that there are underlying factors that must be tackled for plagiarism engagement practices to be prevented among students.

Issrani et al. (2021) in their survey of medical students discovered that with an increased percentage of knowledge (awareness) about plagiarism as students move from a lower to a higher academic level, most of them believed that they still need some guidance/lectures on plagiarism. Interestingly, in a study of nursing postgraduates, Selemani et al. (2018) found that despite a report of a conceptual understanding of plagiarism by postgraduate students, they still admitted to an indecisive position with

an equal chance of either intentionally or unintentionally committing plagiarism. This was largely ascribed to the subjective nature of pressure for good grades, laziness and poor time management, and lack of good academic writing skills. This will depend on individual commitment to academics. This implies that even with the knowledge of plagiarism by students, a negative attitude may still predispose them to plagiarising. This is supported by Alhadlaq et al. (2020) who analysed medical students attending medical ethics courses and reported that those who attended were associated with a significantly more negative attitude towards plagiarism. Fadlalmola et al. (2022) stressed that despite most students being aware of plagiarism, it remained a major predictor of clinical misbehaviour. However, a gap was noticed in the study relating to students' plagiarism knowledge that perhaps contributed to the high plagiarism occurrence.

Fadlalmola et al. (2022) in their study pinpointed that plagiarism was the most frequent academic misconduct among nursing students. This might not be unconnected to why Varghese and Jacob (2015) showed that medical students had limited knowledge of plagiarism issues. Javaeed et al. (2019) demonstrated that the majority of medical undergraduate students were not aware of the existence of plagiarism and they had mostly plagiarised the works of other people. Pais et al. (2021) also underscored that medical students' lack of awareness of plagiarism led to indulgence in its practice. Babalola (2012) found a significant and positive correlation between the perception of plagiarism and the incidence of plagiarism among undergraduates including biochemistry, nursing and public health undergraduates. This suggests that an increase in plagiarism awareness in turn increases plagiarism incidence. In a study of postgraduate students in Nigeria also comprising medical students, Idiegbeyan-Ose et al. (2016) observed that the increased level of training on plagiarism also increased students' plagiarism awareness level. They also established a significant positive relationship between awareness and perception of plagiarism. This shows that as awareness increases, understanding of plagiarism by students improves. Contrariwise, Varghese and Jacob revealed that knowledge of plagiarism was negatively correlated with plagiarism practice. Abbas et al. (2021), Habib et al. (2021), Javeed et al. (2019), and Memmon and Mavrinac (2020) demonstrated that increasing awareness will reduce incidences of plagiarism. Nikjo et al. (2021) emphasised the importance of training [workshop or virtual] on plagiarism knowledge of postgraduate nursing, midwifery and surgery students. It was uncovered that training interventions enhanced the knowledge of students regarding academic dishonesty.

In an interview conducted on bioethics students, Mukasa et al. (2023) observed that some students were not aware of plagiarism at all. The students engaged in copy-and-paste plagiarism by reproducing the texts they see in textbooks or online. Some students expressed that they received confusing messages from lecturers. However, a group in the study called 'determined students' were aware of the concept of plagiarism and made all efforts to bring their similarity index down to acceptable levels. Likewise, Curtis and Tremayne (2021) assessed students [also involving medical students] based on self-reported awareness of and engagement towards different kinds of plagiarism in surveys of four analogous categories at the same university on four circumstances separated by five years (2004, 2009, 2014, and 2019). A descending inclination in plagiarism from 2004 to 2014 was not sustained in 2019. A similar effect was also observed in the rates of awareness and engagement in the diverse kinds of plagiarism in 2019 and 2014. Hopp and Speil (2021), in an Austrian undergraduate study including medical undergraduates, maintained that respondents generally hide the verity of conceivable misbehaviour when it comes to plagiarism because of its sensitivity. With the engagement of an item-count technique, a high prevalence of plagiarism was estimated and with further placebo measurements [where the anonymity of respondents was convincingly assured], a higher plagiarism prevalence was observed in comparison with similar studies. These findings stressed the need for unrelenting efforts to detect and prevent plagiarism and to educate students about academic integrity precepts.

Javaeed et al. (2019) observed that the most common plagiarism type engaged in by medical students was copying their classmates or older students based on the ease with which they have access to their works. This malaise was attributed to a lack of institutional awareness about plagiarism, poor detection vigilance and the nonexistence of well-defined policies on plagiarism. Selemani et al. (2018) established that the prevalent forms of plagiarism admitted by medical students were lack of proper acknowledgement after paraphrasing, summarising and using quotation marks. Similarly, Fadlalmola et

al. (2022) in studying medical students also stated that paraphrasing without referencing was the most practised form while submitting others' work without acknowledgement was the least one. These studies point forward that if universities play their overseeing role in plagiarism control through education, training and policy formulation, plagiarism engagement by students could become minimal.

Method

Research Context

This study was carried out at Adeleke University, Ede, Osun State, Nigeria. In this university, funding has gone into the purchase of plagiarism software including Grammarly and EagleScan (a plagiarism checker designed by the Nigerian Universities Commission). Hence, there is a need to justify this investment. The respondents were basic medical sciences students in the five departments housed by the Faculty of Basic Medical Sciences. The institution was selected due to the factors of being a foremost private university, the university's current promotion of medical education, and limited funding and proximity to the researchers. The respondents were selected based on the inclusion criteria of having offered research methodology and ethics courses at their penultimate and final year classes as included in the curriculum [with the final-year students' projects ongoing] and having prior knowledge of some plagiarism software based on taught courses. The study's exclusion criteria included the inability to provide informed consent and incomplete questionnaire filling. The survey was carried out in the 2021/2022 academic year. A total population sampling technique was used to investigate available 361 basic medical sciences students in the Faculty of Basic Medical Sciences at Adeleke University, with all five departments in the Faculty examined (Table 1). The technique was employed because the target group had a manageable size and also a particular set of characteristics.

Research Problem and Rationale for the Study

A scoping review of the literature featuring research ethics and research integrity cases showed that over two-thirds of the cases considered concerning non-adherence to guidelines and plagiarism were from medical and health sciences (Armond et al., 2021). In addition, a systematic review by Fadlalmola et al. (2022) indicated that plagiarism is a critical predictor of clinical misconduct. Furthermore, high-profile cases from Nigerian educational institutions such as Fatunde (2019), Lawal (2019) and Nordling (2018) suggest the widespread prevalence of plagiarism among undergraduates, particularly medical sciences students whose works are expected to be original considering the sensitive nature of their profession [dealing with human lives]. Additionally, the research problem in this study stemmed from two key factors. First, one of the researchers is an editor and has observed that most of the basic medical sciences undergraduates have problems citing and referencing, quoting and paraphrasing. Second, a thorough search in major library databases revealed a dearth of literature on basic medical sciences undergraduates' plagiarism praxis in Nigeria.

Instrument Development

The study adopted a survey research design. Data were collected through a structured questionnaire. The quality of the questionnaire draft was assessed in two ways. Firstly, regarding validity, copies were given to senior academics for their expert opinions and input. Their corrections as inputs were made. Secondly, Cronbach's alpha test was employed to test the reliability of the instrument. This involved a pilot study before the main data collection. The questionnaire was pre-tested on the penultimate and final year students in the College of Health Sciences of Osun State University – a public university in Nigeria. The questionnaire was administered to 30 basic medical sciences undergraduates. This population was not part of the selected respondents. The results of pre-testing indicated the significance of the alpha value. The results ranged from .72 to .79 and overall were .72 for known plagiarism types, 0.74 for plagiarism awareness, .77 for plagiarism reasons and .79 for engagement in plagiarism practices.

Data Collection

Five postgraduate research assistants helped in the administration and collection of the questionnaire. They were trained on the different aspects of the questionnaire. The training was to enable them to guide and answer respondents' questions in the course of the questionnaire administration and collection. The instrument was administered during lectures of compulsory courses taken by the students as permission

was sought from the lecturers. However, some students submitted their copies at a later time. The collection process was challenging as repeated visits were made before total instrument collection. This led to a few of the copies of the questionnaire not being appropriately filled.

From the 316 copies of the questionnaire distributed, 302 were returned (a return rate of approximately 96%). However, 296 usable copies were found worthy of being analysed because six copies of the questionnaire were wrongly filled after assessment and they were discarded. The questionnaire comprised four sections that collected responses on demographic information, plagiarism types and reasons for plagiarism, plagiarism awareness, and engagement in plagiarism. All questions were close-ended. Responses on plagiarism types were yes and no answers. The responses on reasons for plagiarism, plagiarism awareness and engagement in plagiarism were rated based on a 4-Likert-scale of 4: Very True, 3: True, 2: Seldom True and 1: Not True, giving an overall average of 2.5.

The questionnaire was an adapted one based on a deliberate modification of questions by the researchers according to the reviewed literature, particularly studies by Mustafa (2016), Fish and Hura (2013) and Starovoytova and Namango (2016). Engagement in plagiarism was broadly categorised into purpose and nature. The purpose was connected to students engaging in plagiarism for academic and commercial reasons. Commercial reasons were associated with most students being digital natives. In the current era of social media, students plagiarise by sharing someone's social media post without obtaining their permission and not crediting them for the original content which is plagiarism. This can also include reposting images, videos, or written content without acknowledging the original creator. Some students have made some profit from these contents by commercialising them. Nature in this study had to do with materials online being protected or not - granting students easy access or not.

Data Analysis
The gathered data were collated and analysed using descriptive and inferential statistics. Descriptive statistics such as frequency count, percentage, mean and standard deviation scores were employed for research questions 1-4. Inferential statistics – Spearman's rank correlation test was used to measure research question 5. This test examined the correlation between the two phenomena - plagiarism awareness and plagiarism practices engagement. The technique was employed because the data of the measured phenomena satisfied the two assumptions that must be met. These included (1) they were measured on an ordinal scale and (2) they had a monotonic relationship after creating a scatterplot using SPSS statistics (Agresti, 2007; Bhattacherjee, 2012).

Ethical Approval
Ethical issues in this study were appropriately addressed. First, we sought and were granted permission by the Director of Adeleke University Research and Ethical Committee to conduct the study at Adeleke University. Second, respondents were informed through a consent letter before taking part in the study. To demonstrate that the respondents were satisfied with the content, they had to sign before being given a questionnaire to fill out.

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Findings

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Table 1 summarises the demographic information of the respondents. There were 296 respondents from the Faculty of Basic Medical Sciences. In terms of gender, though female students constituted the majority (50.7%), however, it was just a slight difference compared to the males (49.3%). This demonstrated similar data on gender indicating a good representation. The majority of the students were in the age range of 18-25 (90.2%). The nursing undergraduates constituted the highest respondents (41%) while the lowest were physiology undergraduates (5%).

Identified Plagiarism Types
The question aimed to identify the types of plagiarism known to the respondents. Four plagiarism types were provided. This was considered to be imperative in influencing the kind of plagiarism that the undergraduates could be mostly involved in. Trained assistants helped the students in case they needed to clarify any differences or similarities in the types. As shown in Table 2, most of the basic medical undergraduates showed that they knew about the four options given for the types. Above two-thirds of

the respondents demonstrated that complete plagiarism, copy and paste and word switch plagiarism types [in this order] are known to them. However, the least type was self-plagiarism (139; 47%).

Table 1. Demographic characteristics of respondents (n = 296)

Demography	Frequency	Percentage (%)
Gender		
Male	146	49.3
Female	150	50.7
Age range		
18-25	267	90.2
26-35	29	9.8
Department		
Public Health	90	30.0
Medical Laboratory Science (MLS)	51	17.0
Nursing	121	41.0
Physiology	14	5.0
Anatomy	20	7.0

Table 2. Known plagiarism types

Types of Plagiarism	Frequency - Yes	%	Frequency - No	%
Complete plagiarism	235	79.4	61	20.6
Copy and paste	216	73.0	80	27.0
Word switch	199	67.2	97	32.8
Self-plagiarism	139	47.0	157	53.0

Plagiarism Awareness Level

The question aimed to assess the levels of plagiarism awareness among the respondents. Table 3 presents the responses on the plagiarism awareness levels of basic medical undergraduates. This was demonstrated by the different methods through which these students became aware of plagiarism and the extent in terms of the 4-Likert scale that weighs truthfulness level. Most respondents agreed that they are aware of plagiarism through the current awareness service [a library service that provides current information to users] and taught courses – with the two indicators tied at 179 respondents (60.5%) [at the *Very True* level]. However, the awareness of plagiarism by the undergraduates through the current awareness service (98; 33.1%) was slightly higher than through taught courses (91; 30.7%) - at the third Likert-scale level – *True*. This was also corroborated by the mean ratings – current awareness (3.52) and taught courses (3.50). However, 173 (58.4%) of the respondents believed the Internet made them to know about plagiarism. The lowest plagiarism awareness level was getting informed through friends. The general outlook on plagiarism awareness level indicated that most basic medical undergraduates were well-informed about plagiarism. Table 3 attests to this well-informed level by three out of the four plagiarism awareness level indicators affirming to claim. In concurrence, the generally high mean ratings in Table 3 show that the plagiarism awareness levels of the basic medical undergraduates are largely high.

Table 3. Plagiarism awareness level of respondents

Awareness SD	VT	%	T	%	ST	%	NT	%	M
Through current awareness service 0.679	179	60.5	98	33.1	13	4.4	6	2	3.52
Through the Internet 0.680	173	58.4	95	32.1	28	9.5	-	-	3.49
Through taught courses 0.674	179	60.5	91	30.7	26	8.8	-	-	3.50
I got informed through my friends 0.664	81	27.4	108	36.5	91	30.7	16	5.4	2.86

*4: Very True, 3: True, 2: Seldom True and 1: Not True

Reasons for Plagiarism

The respondents were further requested to indicate the reasons why they engaged in plagiarism, particularly the identified plagiarism types, with seven choices to choose from. Table 4 provides a

summary of the results. Most respondents (195; 65.9%) cited the pressure to turn in written assignments/works. This was followed by timely access to information to meet deadlines (172; 58.1%) and then a deadline to turn in group work (137; 46.3%). The least number of basic medical undergraduates (90; 30.4%) indicated preventing medical errors in their writing as a reason for plagiarism. The aforementioned results are also supported by the mean ratings as observed in Table 4. Further, as observed from Table 4 and in agreement with the generally high mean ratings, the respondents must have plagiarised for all the listed reasons in the questionnaire.

Table 4. Reasons for plagiarising

Reason for Plagiarising SD	VT	%	T	%	ST	%	NT	%	M
I plagiarise because of:									
For making my writings most satisfactory and simplified *0.745*	134	45.3	43	14.5	28	9.5	91	30.7	3.36
Pressure to turn in written assignments/ work *0.750*	195	65.9	81	27.4	10	3.4	10	3.4	3.74
Inadequate writing skills *0.764*	99	33.4	129	43.6	50	16.9	18	6.1	3.05
For timely access to information to meet deadlines *0.759*	172	58.1	34	11.5	14	4.7	76	25.7	3.72
Lack of knowledge on what constitutes plagiarism *0.752*	112	37.8	111	37.5	49	16.6	24	8.1	3.20
To prevent medical errors in my writing *0.769*	90	30.4	32	10.8	31	10.5	143	48.3	3.04
Deadlines to turn in group work *0.765*	137	46.3	138	46.6	13	4.4	8	2.7	3.56

Engagement in Plagiarism Practices

This question sought to establish the engagement of the basic medical undergraduates in plagiarism practices, that is, students undertaking or attempting the act of plagiarism. As revealed in Table 5, the engagement of the respondents in plagiarism practices as designed in the questionnaire is viewed from a general perspective and also from two other different perspectives – purpose and nature. By and large, the respondents engaged in plagiarism practices for educational purposes as indicated by 179 (60.5%) of the respondents.

Table 5. Engagement in plagiarism practices

Engagement in plagiarism practices SD	VT	%	T	%	ST	%	NT	%	M
Purpose									
I engage in plagiarism practices for educational purposes *1.219*	179	60.5	109	36.8	2	0.7	6	2.0	3.56
I engage in plagiarism practices because of commercial purposes *1.230*	147	49.7	71	24	27	9.1	51	17.2	3.06
Nature									
Involved in plagiarism practices because copied work is not protected *1.254*	117	39.5	69	23.3	24	8.1	86	29.1	2.73
Involved in plagiarism practices because copied work is protected *1.220*	59	19.9	32	10.8	32	10.8	173	58.4	1.92

Based on purpose, engagement in the practice of plagiarism was also for educational purposes while in terms of nature, more than one-third (117; 39.5%) of the respondents indicated engaging in plagiarism

practices because they felt the copied work was not protected. The mean ratings of the individual indicators of the plagiarism practices engagement construct attest to the Likert-scale results of the respondents undertaking plagiarism for the first three indicators listed in Table 5. However, the mean rating of involvement in plagiarism because of protected work was the lowest (1.92) – indicating that the lack of access to protected works reduced plagiarism practices. However, at a general level, the engagement of the students in plagiarism practices was high judging from the indicators (purpose and nature) and their sub-indicators.

Plagiarism Awareness Level and Plagiarism Practices Engagement Level
As revealed in Table 6, there is evidence of a statistically significant bivariate correlation between plagiarism awareness level and plagiarism practices engagement level *(p=0.000< 0.05)*. In addition, there exists a moderate strength monotonic correlation between the two phenomena under study [rho = -.515, which is between Spearman's correlation coefficient of between -.04 and -.06] (Sarwono, 2018). Also, the negative sign of Spearman's correlation coefficient implies a negative correlation denoting a correlation between the two phenomena that travel in different directions. This means that as the plagiarism awareness level goes up, the plagiarism practices engagement goes down, and vice versa.

Table 6. Spearman's rank correlation analysis - correlation between plagiarism awareness level and plagiarism practices engagement level

			Plagiarism awareness level	Engagement in plagiarism practices
Spearman's rho	Plagiarism awareness level	Correlation coefficient	1.000	-.515
		Sig. (2-tailed)	.000	
		N	296	296
	Engagement in plagiarism practices	Correlation coefficient	-.515	1.000
		Sig. (2-tailed)	.000	
		N	296	296

Independent variable: Plagiarism awareness level
Dependent variable: Engagement in plagiarism practices
Significant at ≤0.05

Conclusion
Demographically, this study shows a very slight difference between male and female basic medical science undergraduate students in terms of the number – males show less than a 1.5% difference from females. This indicates a lack of gender bias and fair gender representation in the study. However, the age range of 18-25 shows what is obtainable in Nigeria as most undergraduates fall in this age range. In addition, the tilting of the larger population of students in descending numbers regarding discipline in the order of Nursing, Public Health, Medical Laboratory Science, Anatomy and Physiology is a reflection of the dwindling employment opportunities in Nigeria in the lower disciplines, that is, Anatomy and Physiology. Students will like to study the first three disciplines as they are found locally lucrative and also provide a greater chance of getting employed abroad, particularly in the UK and the US. This can make the students plagiarise as they desire to get high grades to be considered brilliant students (Babalola, 2012).

The students demonstrate that they know about the plagiarism types listed in the questionnaire. Out of the four plagiarism types listed, self-plagiarism was the least identified as indicated by almost half of the respondents (47%). This is an indication of a positive disposition regarding students being theoretically knowledgeable about what plagiarism types are. This is not surprising as the study reveals this in Table 3 where the students confirm that they are aware of plagiarism through taught courses, current awareness services and the Internet. This study is in line with Fadlalmola et al. (2022) and Issrani et al. (2021) who indicated that students in their study were aware of plagiarism, particularly with Issrani et al. (2021) mentioning that students' progress in academic level is correlated with plagiarism awareness. The study further concurs with Selemani et al. (2018) and Fadlalmola et al. (2022) who showed that students have an issue with paraphrasing. This could not have occurred if they had no prior knowledge of plagiarism. The recognition by students of the plagiarism types is a good sign as this

awareness is most likely to reduce plagiarism practices since it is an academic deviant behaviour that must be reduced by all means possible among students.

Similarly, the plagiarism awareness level of basic medical sciences undergraduate students is encouraging. Generally, the Likert-scale values and the mean ratings of plagiarism awareness level indicators are high. This finding to a great extent largely agrees with Juyal et al. (2015) and Habib et al. (2021), and partially concurs with Mukasa et al. (2023). This affirms the positive influence of current awareness services, university-taught courses, student interaction with friends [who are most likely fellow students] and the Internet. Nevertheless, the studies of Babalola (2012), Varghese and Jacob (2015), Javaeed et al. (2019) and Pais et al. (2021) are not in line with the current study. They all claimed that students had little or no understanding, knowledge or awareness of plagiarism as these words were used interchangeably in these studies. Since the indicators of plagiarism awareness level in the current study are achievable individual and institutional factors, there should be conscious individual and institutional efforts towards encouraging their continued enhancement as they will help in plagiarism reduction among students. This could indicate medical students' admiration of a pragmatic academic setting and their willingness to get engrossed with a positive institutional plagiarism-control drive to exhibit academic integrity characteristics (Habib et al., 2021). This further pushes the fundamentals of academic integrity as a central component of higher education that sustains the standing of the university and the worth of students' qualifications (Holden et al., 2021).

The reasons why the respondents plagiarise are indications of possible concern to score better grades, time mismanagement, deficient and not-well-directed library system and lacklustre approach of lecturers to supervised teaching and mentoring [possibly during practical sessions]. The indicators ticked by the respondents ranging from pressure to turn in written assignments/works, timely access to information to meet deadlines, and the deadline to turn in group work demonstrate this worry. These findings are corroborated by Singh and Guram (2014) and Jereb et al. (2018) citing academic pressure and Selemani et al. (2018) who mentioned inadequate management of time and pressure of getting good grades as reasons for plagiarising. Further support for students' basis for anxiety, which should be a clarion call to the lecturers for augmenting their teaching and practical skills, is the respondents' low indication of not plagiarising because of averting medical errors in writing. Medical students, because they are professionals and dealing with human lives should be concerned about their writing – they will not want to copy and propagate unproven medical information because both professionals and non-professionals would want to read and apply the possible written medical facts and principles. The outcome of the present study may not be unconnected with medical undergraduate students who mix up the writing pattern in university and high school that is associated with teacher's laxity in academic writing, communication and mentoring (Mukasa et al., 2023). This restates that training interventions must be put in place for continued detection and prevention of plagiarism among students by concerned authorities and classroom and practical instructions for students on plagiarism (Curtis & Tremayne, 2021; Nikjo et al., 2021).

Generally, this study shows that the engagement of the students in plagiarism practices is high judging from the indicators (purpose and nature) and their sub-indicators. This comes after the students demonstrate knowledge about what plagiarism types are and also have a high level of plagiarism awareness. It is hardly surprising to get this result as the respondents are undergraduates. Then again, most studies support this assertion (Alhadlaq et al., 2020; Hopp & Speil, 2021; Javaeed et al., 2019; Fadlalmola et al., 2022; Pais et al., 2021). Alhadlaq et al. (2020), Hopp and Speil (2021), Javaeed et al. (2019) and Pais et al. (2021) stated that the majority of medical undergraduates in their studies displayed a high level of plagiarism involvement. Fadlalmola et al. (2022) accentuated that the most recurrent academic misbehaviour among nursing students was plagiarism. The present study also indicates a significant correlation between the plagiarism awareness level and plagiarism practices engagement level of the respondents (Table 6). Further, the present study's result agrees with Varghese and Jacob (2015) who showed that plagiarism practice decreased as plagiarism knowledge increased.

The outcome of our study may be attributed to institutional differences, indicators for the measure of our variables, the instrument used in the study and the self-reported responses of the researched students

that are common in surveys. The strength of the current study is its institutional focus on the students of the Faculty of Basic Medical Sciences and the fact that the questionnaire was piloted in a related college situated in a public institution. However, the limitations of this study make the findings to be approached with caution. They include (1) being a single institution study, there is the likelihood that this survey may not accurately represent the population of Nigerian basic medical sciences undergraduates and (2) self-report bias - responses are gathered based on respondents' self-report. This can lead to memory limitation, response bias and social desirability bringing about inaccurate responses from the respondents. The interaction between students' plagiarism awareness level and plagiarism practices engagement level is rather a complex subject about student plagiarism, especially employing a survey. The approach of triangulation – the use of other instruments [such as an interview guide and focus group discussion], multiple datasets [studying several institutions] and theories could further contribute to the study and add new dimensions to the study regarding unique findings. Future studies could examine the study of many universities on the topic and the assessment of lecturers' knowledge and implementation of the outcome of plagiarism software in teaching and project supervision of basic medical sciences students.

The indication of a statistically significant, moderate strength monotonic and negative correlation between plagiarism awareness level and plagiarism practices engagement level means that as the plagiarism awareness level goes up, the plagiarism practices engagement goes down, and vice versa. Though the phenomenon of plagiarism awareness level has a moderate correlation with plagiarism practices engagement level, but remains a statistically significant factor that is large enough to unlikely have occurred based on the target group of 296 basic medical sciences undergraduates if there is no correlation in the population. If African research, especially that of the most populous black nation - Nigeria - is to be recognised in terms of its originality, plagiarism must be consciously reduced among the students as they are future researchers. Plagiarism is a subject that takes high precedence in academics, particularly in health or medical sciences that train their students and researchers to value life. Consequently, based on the findings of the study, we recommend:

1. Increased education, instruction, training and workshop attendance should be offered to the respondents and the lecturers to raise their plagiarism awareness and also know the possible consequences of plagiarising academic literature and research. This can further help reduce the level of plagiarism engagement.

2. Since basic medical sciences undergraduates still engage in plagiarism practices, the development of institutional academic integrity policies including pedagogical academic integrity policies is of the utmost importance to control the occurrence of academic dishonesty, especially plagiarism in this case and other academic vices (Holden et al., 2021). This can raise awareness and reduce students' engagement in plagiarism. Additionally, there should be the incorporation of punitive measures for recurring offenders.

3. Librarians and the library should also assist in reducing the act of plagiarism. They are involved in teaching library orientation and instruction courses and most software used in text-matching are located in the main institutional library. Hence, as students are newly enrolled and registered by the library, they should be taught everything that plagiarism represents – its positive outcomes and negative consequences.

4. Lecturers should make it a point of duty that every class assignment should have a proper in-text citation and referencing standard. By this, students are most likely to develop the tendency of appropriate citation which would drive down the probability of plagiarism.

5. Enhanced regulated courses related to awareness, engagement and control of plagiarism and academic integrity should be put in place.

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Establishment Policies of Research Universities:
A Critical Analysis of Global and Turkish Perspectives

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Abstract

Education holds a significant position at the core of social, economic, technological, and cultural development. Universities play a crucial role within the education system by contributing to the global pool of knowledge. With the Renaissance and reform processes, the concept of universities underwent revision, emphasizing the autonomy of universities, preservation of the prestige of scientists, and prioritizing research over teaching. Research universities emerged as new institutions within the scientific community. Research universities serve as institutions that facilitate societal development, progress, and change. This study provides an analysis of the emergence of research universities, the development process in leading countries, and an overview of research universities in Türkiye. A literature review and document analysis were conducted, examining scientific publications in databases such as Web of Science, ERIC, Google Scholar, Dergipark, and the YÖKTEZ. A critical evaluation was conducted regarding the values and practices reflected in the establishment policies of research universities. In general, it is emphasized that determining the core mission of research universities is of great importance, as well as increasing funding and resource diversity, reducing non-research workloads for university staff, and enhancing postgraduate education and inter-institutional cooperation.

Keywords: Policy analysis, Research universities, Postgraduate education, Fund diversification, Inter-institutional cooperation

Introduction

Nations shape various fields such as governance, religion, law, healthcare, trade, art, and artisanship according to their cultures, traditions, worldviews, and lifestyles, forming them under different names and institutions to meet their needs throughout different periods. Although there are differences in content, method and quality between these institutions, they generally form valid and functional higher education institutions by learning from or being influenced by each other. When these educational institutions lose their validity and functionality in the world of society and culture, they usually transform into a different higher education institution and thus continue their existence by training people equipped especially in the fields of administration, law, health and religion (Kenan, 2015). The responsibility entrusted to higher education institutions by society shapes expectations and necessitates a constant renewal mindset.

The importance given to education lies at the foundation of social, economic, technological, and cultural developments. Universities are among the most important institutions serving society's education. Universities contribute to humanity by addressing scientific and technical issues, guiding the country's potential towards development based on contemporary scientific foundations. Additionally, universities established with the aim of producing highly knowledgeable individuals competent in technology usage serve as guiding institutions for humanity (T.C. Başbakanlık, 1992). In today's technologically advancing and globalized world, universities provide positive contributions to the common scientific

pool, both for the countries they are located in and the world at large. Universities occupy positions where they both influence and are influenced during this contribution process. Global needs directly impact the outputs of universities.

The dynamics of the knowledge society and economy worldwide have triggered a transformation process in higher education. With knowledge becoming the most important element in the production process, the role and expectations of higher education have significantly increased. Higher education institutions are expected to produce human resources with the qualities and diversity required by the knowledge society. Furthermore, higher education institutions are expected to produce graduates, generate technology, engage in knowledge-intensive activities, meet lifelong learning needs, and provide services to society (Çetinsaya, 2014). As the importance of higher education increases for societies, economies, and individuals, demands and expectations from higher education institutions have increased and diversified (Schleicher, 2006). Research and development (R&D), innovation, and entrepreneurship are the driving forces of economic growth in the knowledge society and economy. Therefore, universities are expected to fulfill their new functions through collaboration with industry and develop new forms of relationships with all stakeholders. As competition intensifies, universities face pressure to "commercialize knowledge" while competing for more patents, projects, and R&D budgets (Çetinsaya, 2014).

The dominance of neoliberal policies is felt in universities as well, bringing about radical changes. The task assigned to universities in the process of producing the required human resources plays a significant role in sustaining the dominant paradigm. Universities that prioritize project-based operations gain advantages and support their budgets by finding funding. Universities with increased budgets continue their new project cycles by increasing R&D investments and incentivizing their academics. This chain reaction created has a guiding effect on other universities.

It can be observed globally that universities have reached a level of theoretical homogeneity. In other words, almost all universities nowadays are established towards similar objectives and share the same goals. The source of this homogeneity among universities is not a compromise but rather a surrender. The current state of Western universities has brought up the need for a revision in education globally, and as a result, universities established with inspiration from the West have rapidly become widespread (Antalyalı, 2007). Research universities are educational institutions established following this trend. These universities are of Western origin and are important institutions with their qualified human resources, knowledge accumulation, knowledge transfers, and contributions to societal well-being. Research universities can be at the forefront of societal development, change, and renewal through their outputs (TAÜG, 2016). Analyzing the establishment policies of research universities can enable us to examine the emergence and historical transformation of the concept of university, as well as make projections about future developments.

Method

This study aims to analyze the establishment policies of research universities using literature review and document analysis methods. Also referred to as a review study, this method is important for providing detailed information on a specific topic and tracking developments in the field (Herdman, 2006). Document analysis is a method based on accessing and examining materials containing information related to the researched topic (Karasar, 2011). In this regard, scientific publications containing studies on research universities were accessed through databases such as Web of Science, ERIC, Google Scholar, Dergipark, and the YÖKTEZ. In these databases, the concept of "research university" was used as a keyword and all studies were analyzed in the context of the establishment processes of research universities. Web of Science includes three different indexes: Social Science Citation Index (SSCI), Extended Science Citation Index (ESCI) and Arts and Humanities Citation Index (AHCI) (Norris & Oppenheim, 2007) and is a highly reliable international database. ERIC is accepted among the educational sciences field indexes for academics in Türkiye (Altınsoy & Boyraz, 2011). YÖKTEZ is a thesis database for Türkiye. Master's and doctoral theses can be fully accessed through this database. The Dergipark database is a resource that offers free access to the publications of many national and international journals. This database was used to access articles on the establishment of research

universities in Türkiye. Additionally, reports that could serve as references for relevant policies were obtained from the official websites of countries. As a result of the literature search, detailed information on Germany and the United States, countries that have had significant impacts on the establishment and development of research universities, was presented, and their connection to the establishment process of research universities in Türkiye was discussed.

Theoretical Background

In this section, the emergence and historical transformation of the concept of university, the establishment of research universities, the policies of research universities in Germany, the policies of research universities in the United States, global statistics on research universities, and the policies of research universities in Türkiye are presented within the context of the reviewed literature.

The Concept of University and Its Historical Transformation

Before the emergence of the concept of university, schools that could be classified as higher education institutions were responsible for the task of educating qualified individuals. The Academy established by Plato in the 4th century BC can be considered the first institution in this regard. The Lyceum, founded by Aristotle, one of Plato's students, became one of the important schools in Athens. After Aristotle, Athens lost its priority in science, and Alexandria and Rhodes emerged as prominent centers. Particularly, the Library of Alexandria was a great repository of knowledge with its vast collection of books. The city of Alexandria became the most important center of higher education during that period with the migration of scholars from Athens (Saklı & Akbulut, 2017). Over the years, other cities that pioneered in science were added to these centers, and Antioch, Baghdad, Istanbul, and Harran became significant centers of knowledge.

The origins of the modern concept of university can be traced back to the Middle Ages. The term "university" originally meant a community coming together for common interests, synonymous with the term "guild" (Antalyalı, 2007). The interaction between medieval Europe and Islamic civilization led to a rapid urbanization process. The idea of conducting research and establishing a hierarchy among religious institutions formed the basis for the concept of universities (Versan, 1989). The University of Bologna, established in 1088, the University of Paris, founded in 1150, and the University of Oxford, established in 1167, can be considered as the first examples.

In the earliest universities, the main fields of study were medicine, law, theology, and philosophy. These universities focused on specialization (Donelly, 2002). Some educators received charters from the church to provide education open to everyone and, with the recognition they gained, admitted students from all over the European continent. Their main aim was to educate theologians, jurists, and medical doctors (Wissema, 2009). These universities, referred to as the first generation, laid the foundation for the modern university. The beginning of the modern university can be seen as the process initiated by Jeremy Bentham in England, aiming to ensure access to education for people from all levels of society. The differences between the first-generation universities and modern universities are listed in Table 1.

Table 1. Comparison of first generation and modern universities

	First Generation University	Modern University
Target	Education	Education-Research
Role	Defending the truth	Exploring Nature
Method	Scholastic method	Modern Science
Organization	Faculties and School	Faculties
Administration	Chancellor	Academics

Note: Reproduced from the book Towards the third generation university (source: Wissema, 2009)

As seen in Table 1, while the goal of the first generation universities was education, the goal of the modern university has become education and research. The role of defending the truth has turned into investigating nature, and it has started to do this not with scholastic methods but with modern science. Centralized management was replaced by academic staff.

Wilhelm von Humboldt's approach has facilitated a remarkable leap for modern universities (Reed, 2004). This approach is also referred to as the second generation of modern universities.

Establishment of Research Universities

The periods of Renaissance, Reformation, and Enlightenment in Europe marked significant turning points for universities. Existing universities resisted the acceptance of new scientific disciplines and methods and were resistant to change. In response, new universities were established to apply new scientific approaches. These universities, with limited influence from the Church, operated primarily under state control (Çiftçi, 2010). In Germany, under the leadership of Wilhelm von Humboldt, the Humboldt Universities were established to create a research infrastructure by establishing chairs led by professors. In this model, the university was shaped as an institution with the ability to self-govern in scientific and organizational terms, while being subject to financial control (Timur, 2000).

Humboldtian Model

The establishment of modern research universities is based on the Humboldt University, which emphasized research over education and received support from public resources. Founded in 1811, this university is an institution where the prestige of scientists is high and job security is ensured. Academic staff work as public servants in this institution and have academic freedom in intellectual terms (Altbach, 2011). This structure, built on German idealism, regards the production of knowledge and adherence to research requirements as the main responsibilities of universities. According to Humboldt, universities have a fundamental responsibility to not only preserve and transmit knowledge but also to produce knowledge (Hartwig, 2004).

Research universities are institutions where governance is based on the principle of meritocracy, academic personnel are accepted based on merit, promotion criteria are of high quality, and attention is paid to the citation values of academics. Student admission processes are also conducted with similar sensitivity. Research universities require autonomy, academic staff with a low teaching load, qualified graduate students, academic freedom, well-equipped research facilities, and financial support from the public and private sectors (Öztürk, 2019). With these characteristics, research universities have implications for university systems all over the world. The effects they create differ between countries. For example, while it had a strong impact on the USA, the rising and modernizing country of the period, it had a limited impact on countries such as the UK and France, as they were countries with their own models (Amos et al., 2008).

Research University Policy in Germany

The Humboldt University, established under the leadership of Wilhelm von Humboldt, has had a significant impact on the transformation of universities in Germany. Initially founded as the University of Berlin, King Wilhelm of Prussia supported this university. Consequently, in the following years, it was renamed the Friedrich Wilhelm University, and after World War II, it became known as Humboldt University. The university has been home to prominent scientists such as Hegel, Schopenhauer, Einstein, Planck, Marx, and Engels.

The Enlightenment concepts of utility and industry shaped the restructuring of German universities in the 18th century. The traditional understanding of universities faced criticism in terms of its legal and social composition (Amos et al., 2008). German universities with a Humboldtian approach, which focus on producing useful and practical knowledge, embrace four ideals: academic freedom, the unity of teaching and research, comprehensive research, and the priority of basic science for achieving universal knowledge (Ash, 2006).

With the liberation from church pressure, the research university approach freed science and academic work from encyclopedic traditions and aligned them with research. The new type of professor defined by Humboldt was an expert, a researcher, and a scientist. The formula of the "unity of teaching and research" began to represent an ideal directed towards the concept of autonomous citizenship rather than the needs of the state. Therefore, the new type of professor had to exist in a competitive environment. This transformation has brought about not only the transformation of academic staff but also the

transformation of students. Students have been freed from traditional standardized exams and instructional requirements (Amos et al., 2008).

After World War II, the restructuring of education became a significant topic of debate in Germany, and through analysis, it was determined that universities maintained a healthy structure at their core. It was agreed to reestablish the pre-1933 structures and make constitutional regulations (Teichler, 1990). The Science Council (Wissenschaftsrat), a scientific and higher education advisory body, identified reform needs in the context of creating a qualified workforce and social justice approaches. Recommendations were made to develop physical infrastructure and increase competition (WR, 2007, cited in Amos et al., 2008). Following these recommendations, German universities implemented reforms, and new universities were established accordingly.

Although the 20th century brought about certain changes, the Humboldtian ideal continues to persist. Chair professorships are shaped around the concept of genius, and individuals at the peak of their careers contribute to organizations in the form of maximum impact (Zippel, 2017). In this situation known as the Harnack principle, the chair professor has full authority over personnel recruitment, allocation of research budgets, and the course of scientific activities within the institute. This autonomy and excellence contribute to the prestige of universities (Peacock, 2016). The German example provides significant insights into the founding principles of research universities.

Research University Policy in America

When looking at the university structures in the United States, the influence of English universities can be seen as early as the 17th century, and the influence of German universities in the 19th century. However, American universities developed their own unique characteristics in the second half of the 19th century, and by the 20th century, they began exporting knowledge and contributing directly to the economy (Jones, 1992). American research universities have become important centers for research and knowledge transfer in all disciplines (Atkinson & Blanpield, 2008).

The American research university model considers serving society as its fundamental function. It implements a more liberal-based departmental approach and a hierarchical seating system in its organizational structure. Governance methods are applied, and administrative issues are conducted through participatory decision-making. During the Cold War, significant efforts were made, particularly by research universities, leading to additional research budgets provided by the U.S. Department of Defense. This resulted in the creation of a differentiated academic system in many states. American research universities have become the international "gold standard" with these characteristics (Altbach & Salmi, 2011).

American universities play a significant role in the global proliferation and development of research universities (Atkinson & Blanpield, 2008). The first research university in the United States is John Hopkins University, founded in 1876. During World War II, the collaborations between research universities and the government led to significant achievements, and this cooperation continued to develop after the war. By the 2000s, the number of American research universities exceeded 100 (National Research Council, 2012). The American research university model differs from the European model in certain aspects. The emphasis on community service, the implementation of discipline-based democratic practices instead of chairs, and the participatory governance approach can be considered as these differences (Altbach, 2011).

The American research university model has developed with respect to the country's conditions, resulting in diversity among states. Its pluralistic structure, various sources such as donations, federal funds, state funds, and tuition fees, and the high competitiveness in undergraduate and graduate research have created a highly productive system. This productive structure has ensured that researchers remain competitive. As a result, American research universities have been more frequently used as a reference by other countries compared to European research universities (Erdoğmuş, 2018).

World Statistics of Research Universities

Research universities have become widespread throughout the world, particularly in Europe and the United States. These universities, where successful academics work, focus more on graduate education rather than undergraduate education, and they have been emphasizing the importance of gaining global recognition in recent years. Due to different practices between countries, it is not possible to provide the exact number of research universities. However, the United States, which has 4,800 higher education institutions, has approximately 150 research universities. In India, out of around 18,000 higher education institutions, 1,800 can be considered research universities, while in China, out of approximately 5,000 institutions, 100 can be classified as research universities (Erdoğmuş, 2018).

There are different platforms that rank universities around the world according to specific criteria. Examples of these rankings include Shanghai Ranking, Times Higher Education and Topuniversities. The data provided by these platforms are frequently used in research as reliable sources. In this study, in which research universities are analyzed, data from the QS World University Rankings report were used since it is important to reach the ratios of university students.

Table 2. World University Rankings (Top 50 Universities)

Rank	University	Assessment Score
1	Massachusetts Institute of Technology (MIT)	100
2	University of Cambridge	98.8
3	Stanford University	98.5
4	University of Oxford	98.4
5	Harvard University	97.6
6	California Institute of Technology (Caltech)	97
7	Imperial College London	97
8	UCL	95
9	ETH Zurich	93.6
10	University of Chicago	93.2
11	National University of Singapore (NUS)	92.7
12	Peking University	91.3
13	University of Pennsylvania	90.6
14	Tsinghua University	90.1
15	The University of Edinburgh	89.5
16	EPFL	89.2
17	Princeton University	89.2
18	Yale University	89
19	Nanyang Technological University, Singapore	88.4
20	Cornell University	87.2
21	The University of Hong Kong	87
22	Columbia University	86.7
23	The University of Tokyo	85.3
24	Johns Hopkins University	85.1
25	University of Michigan-Ann Arbor	84.4
26	Université PSL	83.8
27	University of California, Berkeley (UCB)	82.7
28	The University of Manchester	82.3
29	Seoul National University	82.2
30	Australian National University (ANU)	82.1
31	McGill University	81.9
32	Northwestern University	81.8
33	The University of Melbourne	81.6
34	Fudan University	81.5
35	University of Toronto	81.5
36	Kyoto University	81.4

37	King's College London	81.2
38	The Chinese University of Hong Kong (CUHK)	80.6
39	New York University (NYU)	80.3
40	The Hong Kong University of Science and Technology	79.8
41	The University of Sydney	79.6
42	KAIST - Korea Advanced Institute of Science & Technology	79.3
43	Zhejiang University	79.3
44	University of California, Los Angeles (UCLA)	78.7
45	The University of New South Wales (UNSW Sydney)	78
46	Shanghai Jiao Tong University	77.4
47	University of British Columbia	77
48	Institut Polytechnique de Paris	76.8
49	Technical University of Munich	76.4
50	Duke University	74.8

Note: QS World University Rankings 2023: Top global universities (source: https://www.topuniversities.com/university-rankings/world-university-rankings/2023)

The ranking is predominantly composed of universities from the United States, with universities from the United Kingdom, Switzerland, Canada, South Korea, China, Japan, Germany, and France also included. All universities in the top 10 of the lists are institutions classified as research universities. The proportion of graduate students, the number of international students, and the proportion of international students in graduate education are important data for research universities. In this context, the relevant data from the global university ranking is presented in Table 3.

Table 3. Student Ratios of the Top 10 Universities

Rank	University	Total Number of Students	Ratio of Graduate Students	Number of International Students	Ratio of International Graduate Students
1	Massachusetts Institute of Technology (MIT)	11035	61,00%	3627	83,00%
2	University of Cambridge	20871	37,00%	7865	60,00%
3	Stanford University	14518	59,00%	3318	80,00%
4	University of Oxford	27972	44,00%	9024	70,00%
5	Harvard University	21877	74,00%	5379	88,00%
6	California Institute of Technology (Caltech)	2240	60,00%	683	90,00%
7	Imperial College London	20191	45,00%	12332	51,00%
8	UCL	41194	48,00%	25076	50,00%
9	ETH Zurich	20892	53,00%	8420	74,00%
10	University of Chicago	16325	57,00%	4442	76,00%

Note: QS World University Rankings 2023: Top global universities (source: https://www.topuniversities.com/university-rankings/world-university-rankings/2023)

When the student ratios of the top 10 universities are examined, it is seen that MIT, which ranks first, has a graduate student ratio of 61% and an international graduate student ratio of 83%. For all top-ranked universities, international graduate students correspond to high proportions. This can be characterized as a factor that directly affects the quality of research universities.

Overall, it can be observed that the proportion of graduate students is quite high, especially with a significant presence of international students pursuing graduate education in the relevant universities. The number of patents can be considered an important indicator of success for research universities. According to the WIPO (2022) statistics on patent applications in 2021, China, the United States, and Japan are ranked at the top. Singapore, Finland, and Türkiye are listed among the countries that have shown significant momentum by increasing their patent applications by more than 10% in 2021. Universities actively engage in productive activities in patent production.

Table 4. Ranking of Patent Producing Universities

Rank	University
1	University of California
2	Massachusetts Institute of Technology
3	The University of Texas
4	King Abdulaziz University
5	Stanford University
6	Purdue Research Foundation / Purdue University
7	Harvard College, President, and Fellows
8	Arizona State University
9	California Institute of Technology
10	Tsinghua University
11	Johns Hopkins University
12	Wisconsin Alumni Research Foundation / University of Wisconsin
13	University of Florida Research Foundation, Incorporated
14	University of Michigan
15	University of Pennsylvania
16	University of Minnesota
17	Cornell University
18	University of Pittsburgh
19	Korea Advanced Institute of Science and Technology (KAIST)
20	University of Maryland

Note: National academy of inventors (source: https://academyofinventors.org/publication-type/top-100/?issue=current NAI, 2018)

When examining the list, it is evident that once again, American universities are prominent in the top rankings. Research universities contribute positively to their respective countries through their output-oriented work. It is a natural consequence for countries to provide supportive measures in their higher education policies to develop research universities.

Türkiye's Research University Policy

Countries try to determine the missions of research universities in a way that distinguishes them from other types of universities by emphasizing applied research and research development (Leporia & Kyvik, 2010). In this context, the establishment of research universities in Türkiye began in 2017. The "Mission Differentiation and Specialization Project," initiated by the Council of Higher Education (YÖK), aimed to enable efficient use of infrastructure and human resources in higher education and increase international impact (YÖK, 2017). In the process of identifying research universities, models of research universities worldwide were adopted, and universities were evaluated based on indicators used in those models. Following the evaluation reports and interview processes, ten principal and five candidate universities were identified as research universities (YÖK, 2017).

The criteria for determining research universities were established as follows (YÖK, 2020):
1. Number of publications indexed in SCI (Science Citation Index)
2. SCI-indexed publications with international collaboration
3. Scientific publication scores
4. Citation counts
5. Number of projects
6. Project budgets
7. Project budgets with international collaboration
8. Number of doctoral graduates
9. Number of patents
10. Number of faculty members receiving awards from TÜBA (The Science Academy of Türkiye)
11. Presence of a Technology Transfer Office (TTO)
12. Participation in the YÖK 100/2000 doctoral scholarship program.

Along with the mentioned criteria, the mission, vision, goals, research budget, human resources, and research infrastructure of the university were also used as criteria in the establishment of research universities. There are certain aspects that research universities should prioritize in order to achieve the objectives involved in the establishment of research universities (YÖK, 2020).

- Universities should motivate their academic and administrative staff to conduct research and provide the same level of motivation to their students.
- Necessary support should be provided to researchers by the university.
- Research should be conducted within the framework of the Research Excellent Framework (REF), which has criteria for excellence in order to carry out high-quality research.
- The organizational structure of academic departments should be strengthened.
- Access to funds from national, international, and industrial organizations should be ensured.
- Graduate student admissions should be made based on high criteria.
- Priority should be given to publishing articles in Q1 journals.

In 2017, 10 principal and 5 candidate universities acquired the status of research universities, and by 2023, the total number of research universities reached 23, including 20 state and 3 foundation universities. The latest research university performance ranking and the current status of universities that have obtained the status of research universities in Türkiye can be seen.

	University	Rank	Total (100)	Capacity (40)	Quality (40)	Co-op (20)
A1	ORTA DOĞU TEKNİK ÜNİVERSİTESİ	1	85,87	32,57	36,54	16,76
	KOÇ ÜNİVERSİTESİ	2	70,05	19,97	34,63	15,45
	SABANCI ÜNİVERSİTESİ	3	69,03	15,59	37,15	16,29
	İSTANBUL TEKNİK ÜNİVERSİTESİ	4	68,63	27,75	27,18	13,70
	İHSAN DOĞRAMACI BİLKENT ÜNİVERSİTESİ	5	66,33	23,93	27,61	14,79
	BOĞAZİÇİ ÜNİVERSİTESİ	6	63,25	21,29	28,82	13,14
A2	İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ	7	57,94	25,61	19,14	13,19
	İSTANBUL ÜNİVERSİTESİ	8	54,72	21,54	23,70	9,48
	YILDIZ TEKNİK ÜNİVERSİTESİ	9	50,87	23,45	18,06	9,36
	HACETTEPE ÜNİVERSİTESİ	10	50,26	21,04	22,59	6,63
	GEBZE TEKNİK ÜNİVERSİTESİ	11	50,14	20,35	19,69	10,10
	ANKARA ÜNİVERSİTESİ	12	45,17	17,60	18,10	9,47
	EGE ÜNİVERSİTESİ	13	45,06	20,76	14,42	9,88
	ERCİYES ÜNİVERSİTESİ	14	44,85	15,45	21,36	8,04
	İSTANBUL ÜNİVERSİTESİ-CERRAHPAŞA	15	43,47	20,88	13,53	9,06
	GAZİ ÜNİVERSİTESİ	16	41,06	19,88	15,06	6,12
A3	FIRAT ÜNİVERSİTESİ	17	36,73	10,08	20,37	6,28
	MARMARA ÜNİVERSİTESİ	18	33,03	11,42	13,35	8,26
	DOKUZ EYLÜL ÜNİVERSİTESİ	19	32,09	11,98	14,11	6,00
	ATATÜRK ÜNİVERSİTESİ	20	30,55	12,55	13,68	4,32
	ÇUKUROVA ÜNİVERSİTESİ	21	28,79	13,91	9,47	5,41
	KARADENİZ TEKNİK ÜNİVERSİTESİ	22	28,55	11,62	12,11	4,82
	BURSA ULUDAĞ ÜNİVERSİTESİ	23	26,20	7,66	10,01	8,53

Figure 1. Research Universities Performance Ranking for the Year 2021 (source: YÖK, 2022a; Fırat University, 2022)

In the performance ranking of research universities published by the Council of Higher Education in 2021, Middle East Technical University (ODTÜ) achieved the highest score in terms of expectation criteria. Of the six universities in the group with the highest score, which is characterized as A1, three are public universities and three are foundation universities. The fact that all three foundation universities, which are defined as research universities by the Council of Higher Education (YÖK), are in the top rankings can be considered as an important finding.

The University Monitoring and Evaluation General Report for 2022 provides significant results regarding citation counts obtained in Q1 journals, which is considered an important criterion for research universities (YÖK, 2022b).
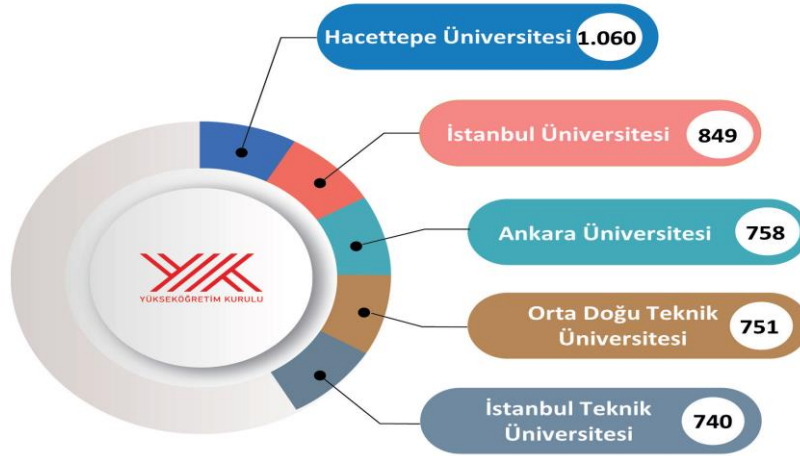
Figure 2. Universities with the Highest Number of Citations in Q1 Journals (source: YÖK, 2022b).

The universities shown in Figure 2 are among the first universities to be granted research university status in 2017. Publishing in Q1 journals is an important evaluation criterion for the academic world. In this respect, the fact that the universities that publish most frequently in Q1 journals among Turkish universities are classified as research universities shows that these institutions have high research qualifications.

Research universities in Turkey are institutions that have been in existence for many years. This leads to deviations from the qualities that research universities should have. Looking at examples from around the world, research universities usually have a student population of around 20,000. In Turkey, these numbers are much higher. In addition, while research universities should have a high proportion of graduate students, this criterion is not met. These universities even offer associate degree programs, providing a significant student diversity (Erdoğmuş, 2018).

A Critical Analysis on Research University Establishment Policies

Research universities, brought about by the emergence of the modern university concept, grant students the freedom in terms of curriculum. Despite the granted freedom, certain courses are still mandatory, and the hidden meaning behind these compulsory courses can be interpreted as producing individuals for the benefit of the state (Reed, 2004). This critique could differ for European research universities compared to American universities. This is because American universities, due to their more recent establishment, the absence of a guild tradition among faculty members, and less stringent professional standards compared to Europe (Öztunalı, 2009), carry the promise of being able to conduct more independent science. Particularly, Johns Hopkins University has served as an important example to demonstrate that American universities can break away from conventional judgments (Antalyalı, 2007). When examining the establishment policies of American universities, the understanding of serving the state can be inferred between the lines. Universities that consider contributing to society as their fundamental purpose are built on the understanding of training competent individuals for the modern industry, which has shaped the United States into its current state, and facilitating society's adaptation to this modernity. Especially after World War II, the focus on serving the industry and indirectly the state has significantly increased (Kenan, 2015).

The underlying basis of the Humboldtian understanding is the utilitarian and industrial approach (Amos, 2008), which can indicate the consistent formation of establishment policies for both European research universities, especially Germany's university transformation, and American research universities. However, this could be presented as a contradiction for the other meaning assigned to research universities, which is to promote free science and ensure the universal advancement of knowledge. The dominance of state objectives in a concealed manner could raise doubts about the impartiality of conducted research and obtained results.

Starting from the 20th century, universities have rapidly globalized and transformed into centers of the knowledge industry, encountering new opportunities and threats (Kenan, 2015). While globalization can be seen as a positive development for universities to become more compatible with establishment policies, the transfer of talented academics can be characterized as brain drain. At the same time, globalization has led to a decrease in the proportion of resources allocated to universities by the state, and the emergence of different actors as financiers. This implies that universities can become influenced by market actors (Tekeli, 2003).

In Türkiye, the lack of clear definition for the roles of research universities is expressed as a significant problem (Balyer & Özvural, 2021; Gülbak, 2020). Diversification of financial resources, global recruitments, and the acquisition of new roles by academic staff are necessary for research universities (Mohrman et al., 2008). Despite the rapid restructuring by the Council of Higher Education (YÖK) to establish the concept of research universities, the adaptation has not occurred at the same pace (Gülbak, 2020), which can be considered a criticism of the policy-making process.

The research conducted by Balyer & Özvural (2021) provides important insights into the challenges of research universities in Türkiye. It reveals that the mission of research universities is not well-defined, the process was initiated without the preparation of legal infrastructure, the selected universities face a significant workload due to their existing student burden, resulting in insufficient time for collaborations and research. Additionally, research universities require funding beyond state funding, and the funds received from the state restrict the academic freedom of publications, limiting the scope of research for academics, which contradicts the nature of research universities.

Conclusion and Evaluation

Research universities have a history of two centuries in terms of global examples. They gained significant importance for countries, particularly with the support they provided during World War II. The valuable knowledge and products they generated in terms of industrialization and accelerated development (Atkinson & Blanpield, 2008) have fulfilled the fundamental expectations in the establishment policies of research universities. However, Humboldt's concept of imparting the understanding of autonomous citizenship to research universities (Amos et al., 2008) can be considered to have taken a back seat due to the increased emphasis on utilitarian missions.

In the United States, research universities have been assigned a role to contribute to society. The provision of various funds and the establishment of a competitive mindset for research universities (Erdoğmuş, 2018) have increased the productivity of academics and universities. The number of research universities has rapidly increased, and scientific studies have been globalized. By becoming a pioneer in global science, important scientists have been recruited to American research universities. Again, the number of international graduate students, which is one of the important indicators of research universities, has reached a very high number for US universities.

The diversification of funding sources and the economic independence of universities are considered important for the impartiality of research. However, the large corporations created by the global economic order can cast doubt on this impartiality by becoming powerful financiers of major universities. The free market conditions and the current financial structure tend to influence universities to adopt an approach suitable for the market (Balyer & Gündüz, 2011). While higher education institutions have the task of meeting the needs of the market by producing a qualified workforce and individuals with high knowledge, the role of research and development should be equally maintained (Higher Education Law, 1981). Although research universities continue to engage in production that directly benefits society and the economy, ensuring the continued increase in global scientific knowledge production is the most important task. The impact it creates globally and the fact that many countries have taken action to establish research universities can be considered as indicators of the success of research universities.

In Türkiye, regulations were made in 2017 for the establishment of research universities. When evaluated in terms of examples worldwide, it can be described as a policy that was implemented quite late. Additionally, research universities were determined as a result of the evaluation of existing universities based on specific criteria, rather than being newly established universities (YÖK, 2017). The fact that existing universities already accommodate a large number of students in associate and undergraduate education does not align with the concept of research universities. Research universities should be designed as institutions that prioritize graduate education, where academics have less teaching load and focus on research. Only in this way can their contribution to scientific knowledge and societal production be maximized.

Having an autonomous structure is important for research universities to produce scientific knowledge. In Türkiye, higher education, in general, operates under the control of the Higher Education Council (YÖK), which allows for political authority (Şenatalar, 1993, as cited in Balyer & Gündüz, 2011). The council has many powers, including the power to dismiss individuals from their professions. The supervisory role of higher education has been assigned to the state (YÖK Law, 1981). In this sense, it can be said that the legal infrastructure for the scientific autonomy of research universities in Türkiye is not at the desired level.

One of the factors that enhances the quality of research universities is the high number of academics publishing in Q1 ranked journals and achieving high citation scores. In order to increase the frequency of scientific publications in Turkish universities, measures such as support programs, widespread availability of electronic libraries, academic incentives, and updating evaluation criteria have been implemented. However, Türkiye has a relatively low ranking in international scientific publication rankings (Acar & Bektaş, 2021). Additionally, the number of journals indexed in databases such as SSCI, SCI, and AHCI is also quite low in Türkiye. Structuring research universities according to the fundamental criteria they should possess will enable them to have a greater say in international science. Another challenge expressed for research universities in Türkiye is the need to ensure financial freedom and diversification of funding sources (Balyer & Özvural, 2021). Although the regulations implemented by YÖK (Higher Education Council) have increased state contributions (YÖK, 2020), this improvement has been one-sided. Strengthening collaborations between the private sector, capital owners, industry, and research universities, and enhancing joint production mechanisms can contribute to meeting funding needs and gaining social acceptance for the concept of research universities.

In conclusion, when the establishment policies of research universities in Türkiye are examined, it can be observed that university evaluation criteria are determined based on global examples, but a structuring has been carried out based on existing universities. Insufficient regulations have been made in terms of student load, research faculty, funding needs, legal infrastructure, and clarifying the mission of these universities. These missing regulations hinder the clear definition of the term "research university". It is recommended for higher education administrators and policymakers to conduct re-estimation processes regarding the expected outcomes of the research university policy and to implement structural improvements.

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