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Editorial:

The Higher Education Governance & Policy journal has increased its international outlook and continues to attract the interest of scholars worldwide. In this issue, four articles from five different countries explore various issues surrounding higher education systems. The first article by Sarıkaya and Şaylıgil, in their article entitled "Development of the Nature of Science Scale for Academics," described the development of the nature of science scale for academics. The study revealed a five-factor measure, which explains 52% of the total variance. The scale is potentially a useful tool for understanding academics' perceptions of the nature of science. In the second study by Adzovie, Attila and Omotosho, titled "Challenges Faced by International Students in Public Universities in Ghana," the authors investigated the challenges that international students encounter at universities in Ghana. Using a phenomenological design, the study indicates that students face various challenges in their academic, economic, financial, and psychological domains. The authors urge academic leaders and policymakers to respond promptly to these challenges. The third study by Kamyabifar, Nazarzadeh Zare, and Khakpour identified factors that influence the recruitment of female faculty members in Iran. Their case study shows that individual, organizational, and societal factors play roles in hiring female faculty. The authors argue that understanding various theoretical backgrounds calls for additional policies to ensure the employment of female faculty members. The fourth article, titled "Analysis of Students' Opinions Regarding Service Quality Related to Physical Facilities of Public Universities in Bangladesh" by Islam and Şahin, examined students' opinions on the service quality of physical infrastructure at public universities in Bangladesh. The results suggest that Bangladeshi universities face inadequacies in classroom environments, limitations in digitalizing libraries, technological infrastructure to support teaching and instruction, and shortages in other support services, including sports, health, accommodation, and catering. These limitations indicate the need for fundamental measures to improve services for students. In the final article of this issue, titled "Autonomy and Academic Freedom in Universities: Country Examples Based on Types of Governance," Ültanır reviewed the core academic values of higher education. Drawing on the history of universities in Turkey, the authors evaluated the development of administrative, financial, and academic autonomy within Turkish universities.
We hope that the articles in this issue of HEGP will inspire its readers.

Yasar Kondakci and Şahabettin Akşab
Editors

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Development of The Nature of Science Scale for Academics

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Abstract

It is clear that the steps that can bring a perspective to science and enlighten our path with new changes can be provided by academics who have grasped science and the nature of science. The aim of this research is to develop a scale by which the views of academics on the nature of science can be evaluated. The study was carried out with the voluntary participation of 682 academics at four different universities using a quantitative, methodological research design. As a result of the factor analysis, 19 items were grouped under five factors: "Definition of Science," "Systematicity and Reality," "Subjectivity in Science," "Openness to Change," and "Falsifiability in Science." These factors explained 52.709% of the total variance. The scale was found to be reliable with a Cronbach's alpha reliability coefficient of 0.615. The Nature of Science Scale for Academics is useful for determining how academics perceive science and its nature, considering the shift from a positivist-objective understanding of science to a subjective one, and the impact of post-modernism on the hierarchical structure of values within cultural codes.

Keywords: Academics, Nature of science, Postmodernism, Positivism

Introduction

The Turkish Academy has been criticized for various reasons in recent years and has been shown to be far from the desired level based on bibliometric data (ULAKBIM, 2016; TISK, 2015; Akçigit & Özcan-Tok, 2020; Damar, Özdağoğlu, and Özveri, 2020). This situation arouses curiosity about how academics view science. Consequently, it is crucial to elucidate the concept of science in academics' world of thought and to demonstrate which currents of thought feed and influence their approaches to science. Thoughts and philosophical currents, on which academics build their mental patterns providing a background for their studies and affecting their view of science as a conceptual framework have undergone a change over time. The world of thought, which was embellished with traditional and metaphysical elements and presented a haphazard picture in terms of subjective diversity in the Middle Ages, gained a regular and positive appearance by attaining rational features with the Enlightenment and objective and methodical qualities with positivism after the 19th century. After the mid-20th century, the objectivity of positivism was shaken by Einstein's theories of relativity and developments in quantum physics, as well as by post-modernism, which made its effects felt in many areas.

In the philosophy of science, Popper's (2010) approach of "No observation is independent of theory" and Kuhn's (1982) principle of "incommensurability" are the most important criticisms brought to the positivist understanding of science (Popper, 2010; Kuhn, 1982). The phenomenon of the nature of science has emerged due to the understanding that has developed through the criticism of positivism. An understanding that the subject which has been ignored in the face of objectivity of positivism should be at the center of epistemological theory unconditionally has brought many values together with the

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subject. Therefore, fields of history, philosophy, and sociology of science have gained importance along with the subject.

At the beginning of 20th century, positivists of the Vienna Circle argued that science was a process of cumulative progress based on objective, experimental, and universal laws and saw observation and logical verification as the basic tools of knowledge production. However, this approach began to be questioned over time. The fact that the subject in science began to be given more priority, unlike its position in positivism, is based on the assumptions that science is mutable and therefore it is impossible to reach absolute true knowledge - as post-positivists put it inspired by Kuhn-, that intuitive approaches expressing the subject's imagination and creativity have become important, that science progresses through revolutions rather than cumulatively, and that, in a way, the positivist understanding cannot be applied to all fields of science. The concept of the nature of science developed on these assumptions considers all sociocultural and other value judgments affecting the subject.

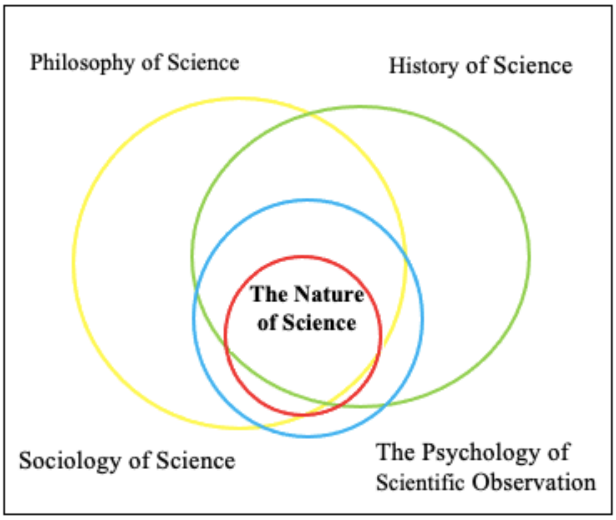

Figure 1. The Relationship Between the Nature of Science and Other Disciplines (McComas, Clough & Almazroa, 1998)

Thoughts on the nature of science have deepened with the development of philosophy of science, bringing about a broader questioning not only about what science is but also how it functions, how it gains meaning, and what values it is surrounded by. This questioning process not only defines science but also makes its conceptual, methodological, and cultural elements visible. The concept of "nature of science" contains a similarly multidimensional structure that is not fully agreed upon.

McComas and Olson (1998) examined eight declarations of international science standards and revealed the distinctive features of the nature of science. According to them, although scientific knowledge is reliable and durable, it does not have absolute certainty. Even though it is based on observation, experimental evidence, and logical reasoning, it is not obtained by a single method. It is also emphasized in this framework that observations are loaded with theory, i.e., they cannot be independent of preconceptions, and that science cannot be isolated from the socio-cultural context. Moreover, science progresses not only cumulatively but also revolutionarily, making it a dynamic process that distances it from constancy.

Similarly, Abd-El-Khalick et al. (1998) state that scientific knowledge is open to change and that even if it is based on experimental foundations, it contains subjectivity. According to them, scientific knowledge is based not only on observation but also on imagination, inference, and the creative human mind. Understanding the difference between inference and observation provides a deeper insight into what science is. Clarifying the distinction between hypothesis, theory, and laws is important in terms of correctly grounding the scientific thought structure.

While presenting the epistemological foundations of science, Lederman (1992; 2007) argues that science is not only a knowledge production process but also a system of values. According to him, socio-cultural context and changeability are among the basic concepts in science, as well as observation, inference, theory, imagination, and creativity. While stating that science does not progress with a universal and fixed method and can be shaped by multiple approaches, he argues that it is an activity that involves subjectivity rather than objectivity.
These approaches are important in terms of understanding the rise of subjective understanding of science. The subjective understanding of science, together with the phenomenon of the nature of science, has created a structure that can reveal the changes in characteristics of scientific knowledge. In transition from the positivist-objective understanding of science to the subjective understanding of science, Table 1 summarizes some of the changes reflected in the characteristics of science and scientific knowledge.

Table 1. Comparison of approaches between the objective and subjective understanding of science

Objective Understanding of Science	Subjective Understanding of Science
Scientific knowledge is objective.	Scientific knowledge is subjective (theory-laden).
Observation and experiments are prerequisites for obtaining scientific knowledge.	Theory is a prerequisite for obtaining scientific knowledge.
Scientific knowledge is unchangeable.	Scientific knowledge is mutable.
Science is activity of conducting research on facts independent of human consciousness.	Science is product of human creativity and imagination.
It is independent of social and cultural values.	It is affected by social and cultural values in which human beings are located.
Scientific knowledge progresses by accumulating.	Scientific knowledge provides breakthroughs through scientific revolutions.
It employs methodology.	There is no single method.
Definitive knowledge is obtained through confirmations and evidence.	Knowledge that is currently valid is reached through falsification.
Theories are unproven information that has explanatory power.	Theories are as important as scientific laws and do not turn into laws.

This transformation in the philosophy of science has brought about not only a methodological but also an ontological and epistemological rupture. Science is no longer considered an objective activity that attempts to explain the external world, but a dynamic structure shaped by mental, cultural, and historical contributions of humans.

Today, academics' perceptions of scientific knowledge, methods, and research processes affect their epistemological preferences and the quality of the knowledge they produce, their understanding of scientific ethics, and their social responsibilities to a decisive extent. A systematic understanding of the beliefs and attitudes of academics, especially those working in higher education institutions, regarding the nature of science is critically important in terms of the quality of scientific education, research ethics, and interdisciplinary approaches. This is because there are important differences between an academic attitude that sees scientific knowledge as objective, universal, and unchangeable and an approach that evaluates knowledge as subjective, context-dependent, and open to interpretation. These differences are directly reflected in academic production styles and the social function of scientists. Therefore, development of a valid and reliable nature of science scale that considers different approaches defined in the philosophy of science literature and is structured in line with modern, post-positivist, and post-modern perspectives is necessary to measure and make sense of epistemological stances of academics. A scale to be developed with this intention should include basic aspects, e.g., observation, theory, falsifiability, subjectivity, openness to change, socio-cultural context, creative processes, and methodical diversity regarding the nature of science, and allow the conceptual analysis of academics' attitudes in the knowledge production process. This will eventually allow assessment of the pluralism and dynamism in today's understanding of science more healthily and scientifically in terms of understanding and transforming academic culture.

The notion of nature of science can be presented as a reliable indicator in revealing how individuals professionally involved in science perceive it today. This is because nature of science, with the power it gets from the depths of history, philosophy, and sociology, is a phenomenon that can show views of academics about science, values they rely on in their scientific engagements, and sub-elements of the image of science in their minds. The nature of science is a phenomenon that has inclusive qualities both in the face of deterioration of the hierarchical structure of epistemological elements e.g., subject-object and observation-theory after positivism, and in the face of deterioration of the hierarchical structure of values, e.g., truth-lie, knowledge-belief, physics-metaphysics, in post-modernism, the weight of which is felt thoroughly today. This study seeks to develop a scale that can reveal how academics view science through the phenomenon of the nature of science.

Scales Developed on the Nature of Science

The examination of the nature of science scales used in the theses conducted in Türkiye between 2009 and 2022 and those developed abroad and adapted to Turkish revealed 103 uses. The most preferred scale was the "Views of Nature of Science C (VNOS-C)" scale designed by Abd-El-Khalick and Lederman (2000), which was used 44 times. It was followed by VNOS-E (11 times), VNOS-D (9 times), and VNOS-B (6 times). The Nature of Scientific Knowledge Scale (NSKS) by Rubba (1976) was used 6 times. There were also other scales used in Türkiye: Young Children's Views of Science (YCVOS) (Lederman, 2007) (used twice); Scientific Attitude Inventory (SAI) (Moore, 1969) (three times); Views on Science-Technology-Society (VOSTS) (Aikenhead, Ryan & Fleming, 1987) (19 times); Nature of Science as Argument Questionnaire (NSAAQ) (Sampson & Clark, 2006) (used twice); Critical Incidents (CI) (Nott & Wellington, 1995) (used only once).

There were also 38 scales developed locally and used in the theses on the nature of science in Türkiye between 2009 and 2022. These scales had been developed by different researchers and used especially in studies on science education, teacher candidates, and students. In this context, the most commonly used scale was the "Nature of Science Beliefs Scale (NOSBS)," which was developed by Özcan and Turgut (2014) and employed 16 times. It was followed by "Understanding the Nature of Science Scale (UNOSS)" by Can (2008) (6 times), "Nature of Science Scale (NOSS)" by Özgelen (2012) (5 times), and "A Conceptualized Family Resemblance Approach to the Nature of Science Scale (CFRA-NOS)" by Erduran & Dagher (2014) (5 times). Apart from these, VTSKS by Çoban and Ergin (2008) was used twice, the NOFSVT test by Yalaki, İrez, Doğan & Çakmakçı (2014) was used twice, and the scales developed by Muşlu (2008) and Hacıeminoğlu (2010) were used once each.

When the sample groups included in the postgraduate theses' studies on nature of science in Türkiye were examined, a total of 141 studies were found. The majority of these studies had been conducted with prospective teachers (56 theses). While primary and secondary school students were included in 51 studies, high school students constituted the sample group in 18 theses. The number of theses on currently working teachers was 15. Only one thesis study on preschool children was identified. This suggests that the nature of science research in the field of educational sciences and the scales created/adapted in this direction are far from revealing the views of the academics in Türkiye on the nature of science.

Method

Type of the Study: This study is methodological, cross-sectional, quantitative, and field research.

Study Setting: The research spanned from November 2019 to March 2020 and involved voluntary participation of 682 academics from four universities in the Central Anatolia Region.

Sample Selection: This research was planned as a thesis study and the research sample was calculated accordingly (Sarıkaya, 2023). 682 academics from four different universities participated in the study. The sample size of 682 academics was deemed sufficient for conducting both exploratory factor analyses

(EFA) and confirmatory factor analyses (CFA). The universities where the research would be conducted were determined after the categorical scientific field and academic title variables were standardized, thus ensuring similarity between the sample groups, which would be subjected to EFA and CFA. There are different approaches in the literature for the number of samples in factor analysis (FA). Tabachnick and Fidell (2013) recommended that a sample comprising 300 individuals sufficed for conducting FA. Comrey and Lee (1992) accepted 100 subjects as poor, 300 subjects as good, and 1000 subjects as excellent. Although there is no consensus in the literature regarding the number of observations in the data matrix, it is accepted as a good approach to have between 5 and 10 observations per variable. In our study, EFA was performed with a sample size of more than five times the 35 items on the scale (n=236). The number of observations in CFA (n=482) was more than twice the number of observations in EFA (n=236).

Steps Followed in the Research: In this research, which is a scale development study, the steps of the Lawshe method were followed (Lawshe, 1975). For this purpose, a pool of 57 items was initially generated, which were then evaluated by experts in their respective fields. Following expert assessments, the item count was trimmed down to 35, establishing the scale's scope. Afterward, the 35-item draft scale was applied to 236 academics at a university in the Central Anatolia Region and determined as explanatory with 19 items and 5 sub-dimensions. The scale was validated and its reliability was demonstrated based on responses from 446 academics from three other universities in the same region (Figure 2).

Literature review
↓
Creation of the item pool
↓
Preparation of expert evaluation form
↓
Calculating content validity ratios
↓
Obtaining the draft scale (data collection tool)
↓
Application of the draft scale
↓
EFA
CFA
Reliability Analysis
↓
Finalizing the Nature of Science Scale for Academics

Figure 2. Steps Followed in the Research

Creation of the Item Pool: An item pool consisting of 57 propositions reflecting the philosophy of science approaches of philosophers, e.g., the Vienna Circle, Popper, Kuhn, Feyerabend, and Lakatos, was created. This 57-item pool was transformed into an "Expert Evaluation Form" and was submitted to experts for evaluation. These experts consisted of academics from the field of philosophy of science, who had conducted studies on the nature of science, and those who had held high-level administrative positions (rectors, deans) in higher education institutions. The experts, consisting of 40 people, were asked to evaluate each item in the pool using one of the following options: "The proposition measures the targeted structure", "The proposition is related to the structure but unnecessary", or "The proposition cannot measure the targeted structure".

Content Validity: The validity of the scale is contingent upon the relationship between the measured attributes and the scale items. Content validity indicators and rates demonstrate the items' ability to measure (Turgut & Baykul, 1992). The content validity ratio (CVR) is calculated as the ratio of experts who affirmed that "the item measures the targeted structure" (deemed "appropriate") to the total number of experts who evaluated this proposition.

Propositions with a CVR value of zero or less (negative) are removed from the pool. The significance of the propositions with positive CVR values is determined by using statistical criteria. To determine the statistical significance of the obtained CVRs, while cumulative normal distribution had been utilized in the literature before related to the content validity criteria, the minimum values (content validity criteria) of the CVRs were converted into a table at α=0.05 for ease of calculation. Consequently, the minimum values for the number of experts also give the statistical significance of the item (Veneziano & Hooper 1997) (Table 2).

Table 2. Content validity criteria at α=0.05 for content validity ratios

Number of experts	Minimum value	Number of experts	Minimum value
5	0.99	13	0.54
6	0.99	14	0.51
7	0.99	15	0.49
8	0.78	20	0.42
9	0.75	25	0.37
10	0.62	30	0.33
11	0.59	35	0.31
12	0.56	40+	0.29

The content validity ratios of 57 items developed in our study are shown in Table 3.

Table 3. Content validity ratios of the items

Number	Item	Appropriate	Appropriate but needs correction	Should be removed	CVR
1	Science is the activity of solving existing problems to make life livable.	33	6	1	0.65
2	Science is the accumulation of knowledge that explains the world we live in.	33	7		0.65
3	Science is discovering new things.	32	7	1	0.60
4	Scientific knowledge is specific to scientists.	23	9	8	0.15
5	Science refers to seeking the objective reality of this world on the basis of the knowledge that has been experienced so far.	30	8	2	0.50
6	The pursuit of objectivity in science is futile.	16	9	15	-0.20
7	Science advances with proofs and validations.	34	4	2	0.70
8	Science advances through the accumulation of certain immutable laws.	28	9	3	0.40
9	No matter how diverse the fields of science are, only one scientific method is used.	17	13	10	-0.15
10	Scientists cannot have an absolutely objective point of view.	26	6	8	0.30
11	A scientific activity cannot be carried out without reasoning.	29	3	8	0.45
12	The results of science should be in accordance with the general opinion of society.	23	9	8	0.15
13	No scientific law is immutable.	37	2	1	0.85
14	Inaccurate information obtained from the research results of scientists slows down the progress of science.	28	4	8	0.40
15	Science need not be internally consistent.	16	6	8	-0.20
16	It is not the business of science to make assumptions about a subject that we cannot directly observe.	27	6	7	0.35
17	It is not right for science to penetrate every field of human beings.	22	11	7	0.10
18	In order for a piece of knowledge to be scientific, it has to be methodical.	30	6	4	0.50
19	Scientific knowledge is a set of beliefs accepted by scientists.	15	11	14	-0.25
20	Scientists' final findings from research need not be universal.	25	5	10	0.25

21	Science provides radical changes with sudden leaps and revolutionary breakthroughs.	29	9	2	0.45
22	Confirmed theories provide an absolute basis for larger theories based on the principle of induction.	30	5	5	0.50
23	Hypotheses, theories, and laws that emerge from experience in science are subjective and internal because they are mental.	22	9	9	0.10
24	In science, we should act according to the national and local understandings of our country.	23	5	12	0.15
25	Scientific generalizations cannot be valid unless proven by observation and experiment results.	25	13	2	0.25
26	The characteristic that makes a piece of knowledge scientific is its potential to be refuted.	28	11	1	0.40
27	Science should not exceed its own limits with the authority it receives from its technological achievements.	28	3	9	0.40
28	Knowledge of truth is closed to scientific methods.	19	2	19	-0.05
29	A theory or hypothesis, no matter how plausible it may seem, cannot be valid unless it is proven by facts.	32	8		0.60
30	A claim that cannot be directly tested cannot be scientific.	26	11	3	0.30
31	The objective world is limited to what takes place in the human mind.	24	10	6	0.20
32	The most reliable knowledge in a field is scientific knowledge, thanks to its method.	26	9	5	0.30
33	Theories precede all observational propositions.	32	5	3	0.60
34	The effort of science to explain universal laws can never be enough to change universal events.	20	6	14	-1
35	If results from an experiment contradict theories, they should be abandoned immediately.	26	4	10	0.30
36	Reason receives its laws from nature.	20	10	10	-1
37	Scientists, like everyone else, cannot get rid of their life values, beliefs, and moral norms.	29	7	4	0.45
38	New observations by scientists who believe in different theories in a field of science will also be different.	24	11	5	0.20
39	It is not correct to act only according to the data of the objective world and not to mention supernatural powers (God, angels, etc.) in scientific explanations.	21	3	16	0.05
40	The fact that an explanation that is not factual in terms of content is logical in terms of form does not give it a scientific characteristic.	32	6	2	0.60
41	The knowledge obtained through the scientific method has no superiority over the knowledge coming from an intuitive, superhuman, and divine ability to know.	20	9	11	-1
42	Scientific knowledge is the common product of societies with various religions, languages, history, geography, and culture.	33	4	3	0.65
43	The scope of the scientific method is limited to material fields.	26	9	5	0.30
44	The job of science is to detect objects that exist beyond the field of observation.	19	12	9	-0.05
45	Scientists should be able to predict the possible outcomes of their experiments.	26	5	9	0.30
46	Two contradictory propositions in science can also be accepted as true.	21	7	12	0.05
47	A scientist should not see any harm in the repetition of his/her research related to the field he/she studies, exactly or partially, by scientists from other nations.	29	4	7	0.45
48	It is more difficult to verify a theory than to disprove it.	32	4	4	0.60
49	Science is the match between the design in the mind with the object or phenomenon in the outside world.	18	14	8	-0.1
50	Science progresses by trial and error, assumptions, and falsifications.	35	4	1	0.75
51	What makes natural phenomena intelligible is reason.	31	2	7	0.55
52	Anything that is not expressed through propositions from a scientific point of view has no meaning.	26	8	6	0.30
53	Progress in science is not continuous.	22	6	12	0.1
54	No error or deviation can be permanent in science.	32	7	1	0.60
55	It cannot be expected that the method followed in a study will be accepted by everyone.	32	4	4	0.60
56	It is undesirable for scientific research to raise new problems.	27	3	10	0.35
57	The source of true knowledge is observation and experimentation.	34	1	5	0.70

The Content Validity Index (CVI) serves to determine the validity of the scale. It is calculated by dividing the mean value of the Content Validity Ratios (CVR) by the number of scale items and is determined at α=0.05. Items with insignificant CVRs are removed from the scale and only propositions that are significant at α=0.05 are included. For content validity of the scale, CVI≥CVR or CVI/CVR≥0 should be ensured. In our study, CVI=0.497, and as a result of the evaluations performed by 40 experts, CVR≥0.29. For this reason, the scale's content validity was statistically significant, and a 35-item draft scale was obtained by removing 22 items from the 57-item pool.

Data Analysis: The data obtained from face-to-face interviews from 682 academics were analyzed on appropriate statistical software. The Analysis of Moment Structures (AMOS) software was used for CFA. Table 4 summarizes the statistical analyses performed.

Table 4. Statistical analyses used in this research

Aspects studied		Statistical analyses used
Socio-demographic Results		Frequency, percentage, mean, median Pearson, Chi-Square ($p<0.05$ significance level)
Content validity		CVR CVI
Construct validity	EFA	Kaiser-Meyer-Olkin (KMO) Bartlett's test of sphericity Varimax rotation
Construct validity	CFA	Chi-Square (Chi-Square Goodness of Fit) RMSEA (Root Mean Square Error of Approximation) NFI (Normed fit Index) CFI (Comparative Fit Index) TLI (Tucker-Lewis Index), GFI (Goodness of Fit Index) AGFI (Adjusted Goodness-of-fit Index)
Reliability		Cronbach's alpha analysis

Results

Socio-demographic findings: The average age of the academics involved in the study was 38.4±9.7 years. The age groups of the participants were 43.1%, 24-34; 31.1%, 35-44; 16.9%, 45-54; 8.9%, ≥55. The mean work experience as an academic was 11.6±9.52 years. The groups according to participants' academic experience were 26.2%, 1-4 years; 42.5%, 5-14 years; 17.6%, 15-24 years; 13.6%, ≥25 years. Of the academics in the research group, 34.6% worked at one university (AuthorsInstitution), 33.4% at Sivas Cumhuriyet University, 18.2% at KaramanoğluMehmetbey University, and 13.8% at Kırıkkale University. The distribution of academics according to their categorical fields of science was 21.8%, medicine; 0.6%, law; 19.2%, architecture and engineering; 10.1%, economics and administrative sciences; 5.4%, health sciences; 5.9%, social sciences; 8.7%, pharmacy, veterinary, and dentistry; 10.4%, educational sciences. Regarding the academic titles of the participants, 13.5% were Professors, 14.4% were Associate Professors; 27.0% were Dr. Faculty Members, 1.9% were Lecturers, 0.6% were Lecturer Dr., 22.4% were Research Assistants, and 20.2% were Research Assistant Dr. (Table 5).

Table 5. Distribution of academics by gender, age, years of academic experience, universities, categorical fields of science, and academic titles

Gender	N	%
Female	304	44.6
Male	378	55.4
Age		
24-34	294	43.1
35-44	212	31.1
45-54	115	16.9
≥55	61	8.9
Academic experience (year)		
1-4	179	26.3
5-14	290	42.5
15-24	120	17.6
≥25	93	13.6

Categorical fields of science	N	%
Medicine	149	21.8
Law	4	0.6
Architecture and Engineering	131	19.2
Basic Sciences	122	17.9
Economics and Administrative Sciences	69	10.1
Health Sciences	37	5.4
Social Sciences	40	5.9
Pharmacy, Veterinary and Dentistry	59	8.7
Educational Sciences	71	10.4
Academic title		
Professor Dr.	92	13.5
Associate Professor Dr.	98	14.4

University					
			Dr. Faculty Member	184	27.0
AuthorsInstitution	236	34.6	Lecturer	13	1.9
Sivas Cumhuriyet University	228	33.4	Lecturer Dr.	4	0.6
Karamanoğlu Mehmet Bey Univ.	124	18.2	Research Assistant	153	22.4
Kırıkkale University	94	13.8	Research Assistant Dr.	138	20.2
Total	**682**	**100**	**Total**	**682**	**100**

Construct validity: FA employed both to ensure the integrity of the scale and eliminate unrelated variables is used to reflect the degree of originality of the theoretical structure underlying the provided information (Erdoğan, Nahcivan & Esin, 2014). EFA was performed in the first stage for the validity analysis of the scale. Prior to the EFA, the Kaiser-Meyer-Olkin (KMO) test was conducted to assess whether the sample size was sufficient for FA. The KMO value was 0.871. In the literature, KMO values are interpreted as 0.90-1.00, excellent; 0.80-0.89, pretty good; 0.70-0.79, good; 0.60-0.69, moderate; 0.50-0.59, weak; <0.50, unacceptable (Altunışık, Coşkun, Bayraktaroğlu & Yıldırım, 2010; Sharma, 1996). Accordingly, it was found that the sample size of the study was appropriate to perform FA. Bartlett's test of sphericity indicated that correlation between the variables was adequate and the data structure was suitable for factor analyses. It was determined that the data set we obtained in our study was suitable for performing FA ($\chi 2$=363.275 and p<0.001) (Table 6). Principal component analysis and Varimax, one of the orthogonal rotation methods, were used as factorization methods to determine the factor pattern of the Nature of Science Scale for Academics (NOSSFA). There is no full consensus on the definition and nature of science in the literature, and the sub-dimensions of the nature of science have not yet been clearly defined. For this reason, the Varimax rotation method was preferred in this study. In this way, independence between the factors was preserved, the distribution of variables to factors was revealed more clearly, and the interpretability of the obtained factor structure was tried to be increased. The factor load value must be at least 0.32 to determine that a proposition measures the factor in which it is included. A proposition with a factor load of 0.30-0.60 measures the structure at a moderate level, and a proposition with a factor load >0.60 measures the structure at a high level (Tabachnick & Fidell, 2013). In the EFA conducted to ascertain the scale's factor pattern, a threshold of 0.30 was set for acceptable factor loading values. In the analysis performed for the five factors, 16 items whose explained variances were not greater than 30% and which were among the overlapping items group and had a factor load difference of more than 0.100 units from that of other items in the group were removed from the scale. The 5th and 31st items were determined as reverse items and reverse-coded. After conducting EFA following the removal of overlapping items, it was found that the factor loadings met the desired criteria and no items overlapped. The factor loads of the items ranged between 0.526 and 0.819, which was considered a good level (Table 6). As a result of Varimax rotation, the propositions were grouped under five factors (dimensions). These factors explained 52.709% of the total variance. Since variance rates ranging from 40-60% were considered ideal (Cliff, 1998), the contribution of each factor to the total variance was adequate.

Table 6. Results of EFA for the dimensions of the Nature of Science Scale for Academics at Universities

Dimensions and items		Rotated Factor Loads	Explained variance
Definition of Science	1. Science is the activity of solving existing problems to make life livable.	0.755	16.622
	2. Science is the accumulation of knowledge that explains the world we live in.	0.819	
	3. Science is discovering new things.	0.779	
	4. Science refers to seeking the objective reality of this world on the basis of the knowledge that has been experienced so far.	0.737	
	5. Science advances with proofs and validations.	0.685	
Systematicity and Reality	12. In order for a piece of knowledge to be scientific, it has to be methodical.	0.730	10.208
	15. The characteristic that makes a piece of knowledge scientific is its potential to be refuted.	0.540	
	17. A theory or hypothesis, no matter how plausible it may seem, cannot be valid unless it is proven by facts.	0.548	

	19. The most reliable knowledge in a field is scientific knowledge, thanks to its method	0.526	
	23. The fact that an explanation that is not factual in terms of content is logical in terms of form does not give it a scientific characteristic.	0.619	
Openness to Change	11. It is not the business of science to make assumptions about a subject that we cannot directly observe.	0.606	8.789
	21. If results from an experiment contradict theories, they should be abandoned immediately.	0.697	
	34. It is undesirable for scientific research to raise new problems.	0.688	
Falsifiability in Science	28. It is more difficult to verify a theory than to disprove it.	0.650	8.238
	29. Science progresses by trial and error, assumptions, and falsifications.	0.663	
	30. What makes natural phenomena intelligible is reason.	0.658	
Subjectivity in Science	7. Scientists cannot have an absolutely objective point of view.	0.597	8.221
	22. Scientists, like everyone else, cannot get rid of their life values, beliefs, and moral norms.	0.722	
	35. The source of true knowledge is observation and experimentation.	0.578	
	Kaiser-Meyer-Olkin=0.871 **Bartlett's Test of Sphericity**; χ^2 =363.275; p<0.001	**Total Explained Variance** 52.709	

The "Definition of Science" factor consisted of items 1, 2, 3, 4, and 5, and it explained 16.622% of the total variance. The "Systematicity and Reality" factor consisted of items 12, 15, 17, 19, and 23 and it explained 10.208% of the total variance. The "Openness to Change" factor consisted of items 11, 21, and 34, and it explained 8.789% of the total variance. The "Subjectivity in Science" factor consisted of items 7, 22, and 35, and it explained 8.238% of the total variance. The "Falsifiability in Science" factor consisted of items 28, 29, and 30, and it explained 8.221% of the total variance.

CFA was carried out with a different sample group consisting of 446 academics with the same characteristics to confirm the results obtained from the EFA. First, the categorical scientific field and academic title variables were standardized, and then the universities where the research would be conducted were identified. This provided similarity between the sample groups, which were subjected to EFA and CFA. Based on the findings from the CFA, it was established that the structural equation modeling result for the scale was significant at p<0.001 level, indicating its association with the 19-item structure comprising the Nature of Science Scale for Academics. The goodness of fit of the structure, which consists of five factors with EFA, was improved. Variables that reduced the rate of fit were determined while the structure was improved, and new covariances were identified for those with elevated covariance among residual values (e6-e7; e15-e16) (Table 7).

Table 7. Goodness-of-fit indices of the Nature of Science Scale for Academics at Universities according to multi-factor model CFA

RMSEA	NFI	CFI	IFI	GFI	TLI	AGFI	$\chi2$	$\chi2/df$
0.049	0.849	0.900	0.901	0.944	0.879	0.925	370.867	2.612
RMSEA	NFI	CFI	IFI	GFI	TLI	AGFI	$\chi2$	$\chi2/df$
0.048	0.864	0.916	0.917	0.951	0.897	0.934	332.661	2.376

The first calculated fit indices and those obtained in the analyses repeated after the improvements are given in Table 6. The fit indices of the Nature of Science Scale for Academics at Universities according to multi-factor model CFA were RMSEA=0.048, GFI=0.951, AGFI=0.934; CFI=0.916; $\chi2$=332.661 (p<0.001). These values indicated an excellent fit between the model and the data (Table 8).

Table 8. The fit indices used in CFA and the results

Fit indices	Good fit	Acceptable fit	Results obtained	Evaluation
χ2 /df	*0≤χ2 /df≤2*	*2≤χ2 /df≤3*	2.376	Acceptable fit
RMSEA	0≤RMSEA≤.05	0.05≤RMSEA≤0.08	0.048	Good fit
NFI	0.95≤NFI≤1.00	0.90≤NFI≤.95	0.864	Poor fit
IFI	0.95≤IFI	0.90≤IFI	0.917	Acceptable fit
GFI	0.90≤GFI	0.85≤GFI	0.951	Good fit
AGFI	0.90≤AGFI	0.85≤AGFI	0.934	Good fit

(Source: Schermelleh-Engel, Moosbrugger&Müler, 2003; Kline, 2011)

The model illustrates the CFA for the Nature of Science Scale for Academics, highlighting a multi-factor model with five distinct factors (Figure 3). Each factor represents a specific dimension of how academics perceive the nature of science.

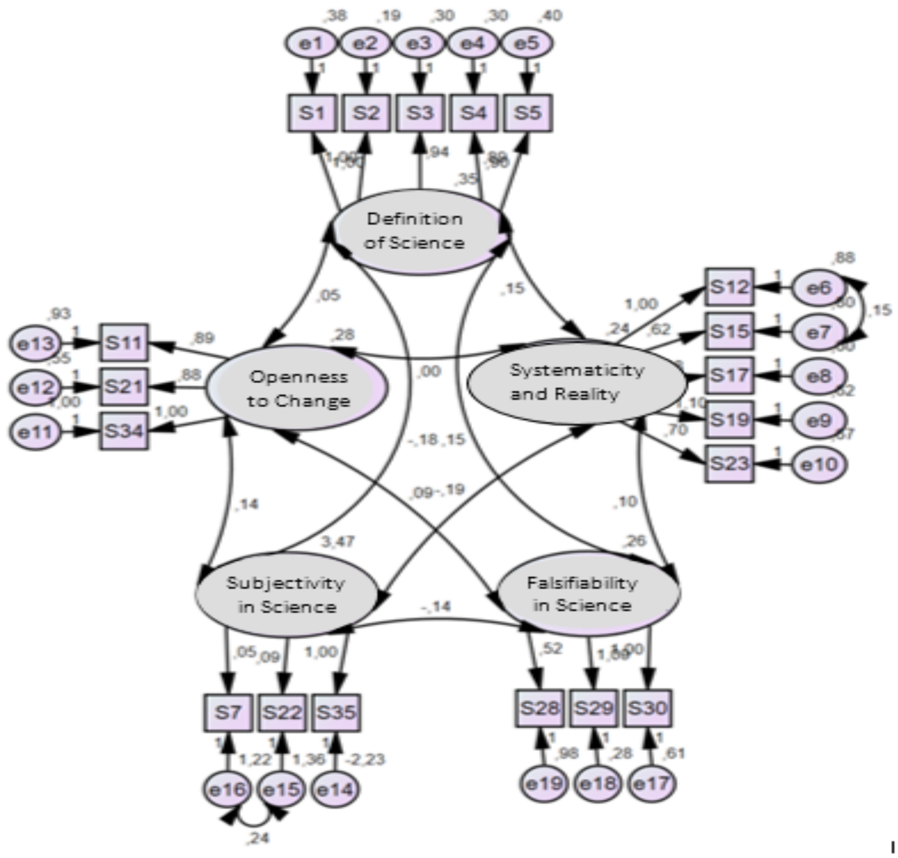

Figure 3. Multi-factor model CFA of the Nature of Science Scale for Academics at Universities

Definition of Science: Items S1 to S5 are loaded onto this factor with significant factor loadings (0.35, 0.89, 0.90, and 1.00, respectively). The error variances (e1 to e5) are relatively small, indicating that the items are well-represented by this factor. **Openness to Change:** Items S11, S21, and S34 load onto this factor, with loadings of 0.89, 0.88, and 1.00, respectively. The error variances (e11 to e13) are also small, showing good representation of the items. **Systematicity and Reality:** Items S12, S15, S17, S19, and S23 load onto this factor, with loadings ranging from 0.70 to 1.00. The error variances (e6 to e10) indicate that the items have a strong relationship with the factor. **Subjectivity in Science:** Items S7, S22, and S35 load onto this factor, with loadings of 1.22, 1.36, and-2.23, respectively. The error variances (e14 to e16) suggest some variability, but the items generally align well with the factor. **Falsifiability in Science:** Items S28, S29, and S30 load onto this factor, with loadings ranging from 0.52 to1.00. The error variances (e17 to e19) indicate a good fit for these items with the factor.

The model shows significant factor loadings and small error variances, indicating well-defined and reliable items and factors. This multi-factor model provides a comprehensive framework for understanding how academics perceive various dimensions of the nature of science, making it valuable for educational and research purposes. Understanding these dimensions and their interrelationships offers insights into how academics view science. The Nature of Science Scale for Academics, validated by this CFA, provesto be a reliable instrument for these purposes. (Figure 3).

Reliability: Cronbach's α is used as an internal consistency criterion in determining the reliability level of Likert-type scales. This coefficient ranges between 0 and 1, with high values indicating that propositions are in harmony with each other and capable of measuring elements of the same quality. Confidence levels according to α values are as follows: $\alpha<0.40$, the scale is unreliable; $0.40\leq\alpha<0.60$, the scale has low reliability; $0.60\leq\alpha<0.80$, the scale is quite reliable; $0.80\leq\alpha<1.00$, the scale is highly reliable (Tezbaşaran, 1996). The Nature of Science Scale for Academics exhibited a Cronbach's alpha reliability coefficient of 0.615, signifying a reasonably reliable measure.

Discussion

There are scales developed under the concept of Nature of Science in the literature. One of them is the Test on Understanding Science (TOUS) scale, which was developed by Cooley and Klopfer in 1961 to measure the nature of science and the concept of science (Cooley & Klopfer, 1961).

Another instrument is the “Views of Nature of Science Questionnaire” (VNOS), developed by Lederman, Abd-El-Khalick, Bell, and Schwartz to measure the understanding of secondary school students, prospective teachers, and teachers about the nature of science (Lederman et al., 2002). The aim of the Scientific Attitude Inventory (SAI) scale, developed by Moore, is to measure attitudes toward science (Moore, 1969). The Scientific Attitude Scale (SAS), developed by Billeh and Zakhariades, includes six dimensions: rationality, curiosity, open-mindedness, avoiding superstitions, objectivity and intellectual honesty, and deferred judgment (Billeh & Zakhariades, 1979).

The sub-dimensions on the Nature of Science Scale (NSS), developed by Muşlu (2008) in the doctoral thesis, are “science,” “structure of scientific knowledge,” and “scientific method”. The Nature of Science Scale for Academics, developed in our study, is different from the Nature of Science Scale developed by Muşlu in terms of the “openness to change,” “falsifiability in science,” and “subjectivity in science” sub-dimensions.

The “Understanding the Nature of Science Scale” (NSS), which Can (2008) developed in the doctoral thesis, titled “Factors Affecting Elementary School Students’ Understanding of the Nature of Science,” consists of three sub-dimensions: “science,” “scientific knowledge,” and “scientist”. This study aims to measure students’ understanding of science, scientific knowledge, and scientists. The “definition of science” sub-dimension on the Nature of Science Scale for Academics has some common semantic items with the “science” sub-dimension on the Understanding the Nature of Science Scale, and the “systematicity and reality,” “subjectivity in science,” and “falsifiability in science” sub-dimensions have common semantic items with the “scientific knowledge” sub-dimension, independent of the target audience.

The “Nature of Science Questionnaire” (NSQ), developed by Hacıeminoğlu (2010) aims at revealing primary school students’ views on the nature of science and includes four sub-dimensions: “changeability of science,” “experimental science,” “imagination and creativity,” and “observation and inference”. There are some similarities between the “changeability of science” sub-dimension on the NSQ and the “openness to change” sub-dimension of the Nature of Science Scale for Academics, and between the “imagination and creativity” sub-dimension and the “subjectivity in science” sub-dimension.

Another scale, namely the Nature of Science Scale (NSS), was developed by Özgelen (2013) for prospective teachers. The Nature of Science Scale consists of the sub-dimensions of “characteristics of scientific knowledge and scientists,” “openness to change,” “subjectivity and technology,” “socialcultural structure of science," and "place of theories in science". There are some similarities between sub-dimensions of the Nature of Science Scale by Özgelen and the Nature of Science Scale for Academics, developed in this study, in terms of the meaning of the items: "characteristics of scientific knowledge and scientists" sub-dimension vs. "definition of science" sub-dimension; "openness to change" sub-dimension vs. "openness to change" sub-dimension; "subjectivity and technology" and "social-cultural structure of science" sub-dimensions vs. "subjectivity in science" sub-dimension.

The "Nature of Science Beliefs Scale" (NSBS), developed by Özcan (2014) in the master's thesis study, consists of seven sub-dimensions: "change in scientific knowledge," "observation and inference," "scientific method," "creativity and imagination," "recognitions and limits in science," "socio-cultural impact," and "scientific laws and theories". This scale is similar to the Nature of Science Scale for Academics in terms of meaning of the items constituting the sub-dimensions.

When the scales developed with the "nature of science" title in Türkiye were examined formally, independent of the target audience, it was found that they had three to seven sub-dimensions.

The "Views toward Scientific Knowledge Scale," developed by Çoban and Ergin (2008), consists of three sub-dimensions and a total of 16 items. The "Nature of Science Scale," developed by Muşlu (2008), consists of three sub-dimensions and 10 items. The "Understanding the Nature of Science Scale," developed by Can (2008), consists of three sub-dimensions and a total of 40 items. The "Nature of Science Questionnaire," prepared by Hacıeminoğlu (2010), consists of four sub-dimensions and 13 items. The "Nature of Science Scale," developed by Özgelen (2013), consists of five sub-dimensions and 19 items. The "Beliefs toward the Nature of Science Scale," developed by Özcan (2014), consists of seven sub-dimensions and a total of 37 items.

The Nature of Science Scale for Academics, devised in this study, aligns with other scales in the literature concerning the sub-dimensions (5) and the number of items (19) dedicated to the nature of science.

The nature of science studies and scales in the field of educational sciences generally focus on students, prospective teachers, and teacher groups, and therefore, the scales in the literature do not fully reflect the views of academics in Türkiye about the nature of science. The Nature of Science Scale for Academics plays a crucial role in addressing this gap.

Conclusion

The Turkish Academy has been criticized for various reasons lately, and bibliometric data show that the desired level has not been achieved in the academic field. It is thought that these problems should be addressed primarily on a philosophical basis. In this context, it is important to reveal how academics view science. The Nature of Science Scale for Academics developed in this research can be used to reveal the views of academics about science and the nature of science through a comprehensive framework. The originality of the Nature of Science Scale for Academics is that it can be used to determine how academics perceive science and the nature of science in the face of both the change caused by the transition from the positivist-objective understanding of science in the philosophy of science to the understanding of subjective science in the hierarchical structure of epistemological elements and the deterioration of the hierarchical structure of values in cultural codes with the effect of post-modernism. Determination of the views of academics on the nature of science in larger sample groups will contribute to revealing the problems that cause bottlenecks in the philosophical ground of the Turkish Academy.

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Challenges Faced by International Students in Public Universities in Ghana

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Abstract

International students enrolling in Ghanaian universities experience adaptation challenges that affect their academic, socio-cultural, and psychological well-being. The purpose of this research was to identify the challenges that international students in Ghanaian universities face during their studies. The study employed a phenomenological design using the qualitative approach. The data were collected through focus group discussions involving 16 international students. The data were audio-recorded, transcribed, and analysed using reflexive thematic analysis. The results showed that international students faced challenges such as financial, accommodation, medical, academic, and emotional. Some of the implications for counselling arising from the results included the need for public universities to streamline their scholarship processes in order to cater for more international students, offer financial literacy education, and establish emergency support funds. There should be interaction between university authorities and landlords to ensure regular and proper maintenance of accommodation facilities at affordable good prices, and make provision for early detection of emotional challenges in the form of ridicule, anxiety, loneliness, and homesickness faced by international students. Educational institutions should invest in mental health services, peer mentorship programmes, and inclusive community spaces to foster friendships and promote a sense of belonging.

Keywords: Accommodation challenge, Counselling, Emotional challenge, Financial challenge, International students and medical challenge

Introduction

Studying outside one's geographical area of origin brings many challenges to students. International students are often confronted with a multitude of challenges and hardships that can negatively affect their academic performance and personal well-being. Some common struggles include navigating language barriers, experiencing culture shock, making friends in an unfamiliar setting, securing employment, and managing stress - all of which international students must cope with in addition to their academic responsibilities (Lertora & Croffie, 2020; Wu et al., 2015). These challenges lead to some international students not being able to complete their programme of study within the stipulated time, becoming disillusioned, homesick loss of identity, health issues, low self-esteem, and acculturative stress (Kanga et al., 2017).

The burgeoning literature underscores the myriad challenges confronting international students in universities (Amponsah, 2011; Iwara et al., 2017). These students often find themselves adjusting to a new educational environment and way of life. The spectrum of challenges they encounter is broad, encompassing academic difficulties, language barriers, financial constraints, accommodation issues, social isolation, homesickness, concerns about family back home, discrimination as well as adjusting to new sociocultural norms and customs (Boafo-Arthur, 2014).
Illia and Yeboah-Antwi (2011), who studied the challenges facing students from neighbouring West African countries using a questionnaire administered to 125 international students in Ghanaian

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universities noted that international students from the Economic Community of West African States (ECOWAS) region faced challenges with English proficiency, the Ghanaian education system, and social interactions due to cultural diversities. Boafo-Arthur (2014), Iwara et al. (2017), and Okusolubo (2018) uncovered adjustment issues related to academic rigours, communication barriers, financial stresses, accommodation challenges, as well as the sociocultural and psychological adaptations required of international students in the universities, as challenges that international students face in Ghana. Boafo-Arthur (2014) studied the challenges faced by international students in Ghana using semi-structured interview with 20 students. The results demonstrated that the international students were mainly challenged by rejection, uncertainties, and role modelling. Also, Iwara et al. (2017) sampled 367 participants from two South African universities and used mixed methods to identify the factors that hinder integration of international students into the South African culture. The results showed that the international students faced challenges such as xenophobia, cultural adjustment, language barriers and emotional challenges.

Ghanaian universities have witnessed a steady rise in international student enrolment from a total of 4,430 to 5,416 (National Accreditation Board, 2020), due to their relatively stable academic environment and growing reputation for quality education. However, despite these positive strides, international students in Ghana face a plethora of challenges such as financial, accommodation, medical, and emotional challenges. These challenges tend to hinder their academic success, social integration, and overall well-being (Sam et al., 2015).

Existing studies on international students' experiences predominantly focus on Western nations, with limited empirical studies focused on African host nations, including Ghana as hosts. While research has highlighted issues such as academic difficulties, cultural adjustment, and psychological stress among international students, there remains a paucity of scholarly literature addressing the specific challenges in Ghanaian universities. Moreover, there is limited understanding of how these challenges differ across universities in Ghana.

Without a nuanced understanding of these challenges, university administrators and policymakers may struggle to design effective support systems tailored to the needs of international students. This study, therefore, seeks to fill this critical gap by providing evidence-based insights into the key challenges faced by international students in Ghanaian public universities. By doing so, it aims to contribute to both theory and practice by offering recommendations to enhance institutional policies and student support services. While literature on their experiences is still developing, insights from broader studies offer valuable perspectives for comprehending and addressing challenges confronting international students in Ghanaian higher educational institutions. However, most of the studies conducted on international students in Ghana and elsewhere employed the quantitative approaches to arrive at conclusions (Akhtar & Kroener-Herwig, 2017; Nyarko-Sampson et al., 2021). Therefore, adopting a qualitative approach to generate more culturally nuanced insights and enhance the depth and breadth of the challenges faced by international students was advantageous.

Theoretical Framework

This paper has adopted Albert Bandura's Social Learning Theory (1969). This theory highlights the social interactions and observational learning that shape people's behaviours in social settings such as in school settings, home or the workplace (Chang et al., 2022b).

This theory is based on the idea that we learn from our interactions with others in a social context. People's behaviours in social contexts such as schools, homes, or workplaces. After observing the behavior of others, people assimilate and imitate that behavior, especially if their observational experiences are positive ones or include rewards related to the observed behavior. According to Bandura, imitation involves the actual reproduction of observed motor activities. (Bandura 1977).

SLT has become perhaps the most influential theory of learning and development. It is rooted in many of the basic concepts of traditional learning theory. This theory has often been called a bridge between behaviourist learning theories and cognitive learning theories because it encompasses attention, memory, and motivation. (Muro & Jeffrey 2008). However, in this regard, Bandura believes that direct reinforcement could not account for all types of learning. For that reason, in his theory he added a social element, arguing that people can learn new information and behaviours by watching other people. This theory outlines three general principles for learning from others According to Bandura (2006), modelling may be used to teach many different types of behaviours. Children may observe adults reading, learners may witness demonstrations of math problems, or they may witness others presenting themselves courageously in a terrifying situation, to mention a few examples (Bandura, 2006).

Models are individuals who are being watched, and modelling is also used to describe the process of learning from these individuals. Whenever a person perceives good or favourable results in the early stage of social learning, the subsequent stages of social learning described by Bandura will take place. A teacher who perceives a class environment as engaging and informative, informed, and approves of how students behave will be more likely to want to teach a class in-world in the future, according to the research by Bandura. Their observations of other instructors' behaviour can subsequently be used to replicate the methods used by those teachers in the real world (Bandura, 1986).

According to the literature, SLT may be classified into three categories of thoughts. Observational learning is a term used to describe the process by which individuals learn through observing others in their environment. Moreover, cognitive play a major role in learning and are described as intrinsically generated motivation or reinforcement in learning theory and neuroscience. Lastly, it highlights that learning does not necessarily result in changes in behaviour, but rather mirrors the modelling process. As a consequence, Bandura developed the term "observational learning" to characterize this method of learning, and he defined the qualities of efficient observational learning as attention, retention, reciprocation, and motivation, among other features.

SLT holds that learners learn socially through observing individuals and imitating patterned behaviors. SLT posits how people learn through observing and experiencing the conduct of others as well as its results. The choice is clear: either individuals learn to copy observed behaviour and reap the advantages, or they learn not to replicate a specific action and avoid the negative aftermath. Social learning theory is characterized by the reciprocal interplay of cognitive, behavioural, and environmental variables, and it is usually seen to connect the behaviourist and cognitive theories of learning (Pajares, 2004).

According to SLT, learning occurs most effectively in social circumstances when it is accompanied by observation, imitation, and modelling. At the time of its inception, social learning theory offered a challenge to the traditional assumptions of behaviourism as well as its anticipated limitations. Further diverging from the core beliefs of behaviourism is the emphasis placed on the significance of cognitive processes, which was previously overlooked in the central concepts of behavioural theories, as well as the promotion of the critical role played by cognitive methods in the processes of learning. It is the notion of Bandura that learning does not always manifest as a direct outcome of direct encounters, but rather as a result of applying the rules of observation and imitation that serves as the cornerstone of social learning theory (Martinez, 2017).

The theory (SLT) offers a useful framework for understanding the challenges faced by international students in public universities in Ghana. According to SLT, individuals learn by observing and imitating the behaviors of others, especially when positive outcomes are associated with these behaviors. For international students in Ghana, adjusting to new academic and cultural environments often involves learning through observation (Gyasi-Gyamerah et al., 2024). They observe local students and faculty to understand academic expectations, social norms, and patterns of interaction, adopting behaviors that align with their new environment.

In addition, SLT emphasizes the role of cognitive processes like attention, memory, and motivation in learning. International students may face cognitive and motivational challenges as they adapt to unfamiliar educational structures, language barriers, and teaching methods. Their motivation is influenced by intrinsic rewards (e.g., personal satisfaction) and extrinsic rewards (e.g., academic success). However, these challenges may affect their ability to stay motivated and engaged, especially when confronted with difficulties in communication or social integration.

The concept of modeling is central to SLT, where individuals learn by observing others who act as role models. In the case of international students, local students and faculty serve as models for adapting to the educational and social environment. However, if these students feel excluded or unable to connect with their local counterparts, finding suitable role models may become a challenge. This can hinder their ability to learn effective coping mechanisms and strategies for success.

SLT's focus on the reciprocal interplay of cognitive, behavioral, and environmental factors provides further insight into the difficulties international students face. Their behavior may be influenced by unfamiliar teaching methods, academic expectations, and social interaction styles. Additionally, cognitive challenges arise from adjusting to a new educational system and overcoming language barriers. Environmental factors, such as cultural differences and limited social networks, further complicate their adaptation process.

Key concepts applicable to international students include the theory helped explain how socio-cultural differences created challenges for international students as they navigate social norms, academic expectations and ways of communication and interactions by use of the local language within the Ghanaian university settings. Also, observing and interacting with Ghanaian students influenced the international students' socialcultural adjustment, academic performance, and total experiences while enrolled in Ghanaian public universities (Chang et al., 2022b; Engel et al, 2024).

In addition, the various social support systems available to international students, such as international student associations, organizations and mentorship programmes significantly impact their social success and academics success. Through modelling, the Ghanaian students served as models for international students, influencing their social behaviours, socio-cultural adjustments and academic performance (Chang et al., 2022b; Engel et al, 2024). They made friends and interacted with the local students within and outside the lecture times and non-official fora. The international students further employed vicarious learning as connect with former Ghanaian students with whom they share aspirations, share common aspirations and values and exchange strategies for overcoming challenges and achieving success during their studies in Ghana.

Through self-efficacy, the belief in their own abilities helped international students in their capacity to succeed academically and socially in their new environment. International students' self-efficacy was influenced by their interactions with Ghanaian students, academic advisors, counsellors and staff.

By applying Social Learning Theory, a deeper understanding of how social interactions and observational learning shaped the experiences of international students in public universities in Ghana was gained. It is therefore hoped that this study will inform the development of effective support programmes and interventions to solve the unique challenges faced by international students.

Aim of the Study

The study aimed at evaluating the challenges faced by international students in Ghanaian public universities.

Research Questions

What are the financial, accommodation, medical, and emotional challenges faced by international students in Ghanaian public universities?

Method

The research employed phenomenology as the research design. Phenomenology became ideal for this study because it enabled the researchers to study the subjective experiences of the challenges faced by international students in public universities in Ghana. Three public universities were purposively selected because they were accredited and had large numbers of undergraduate international students (Creswell, 2018). Furthermore, criterion sampling by self-selection method was employed to sample 16 participants who hailed from diverse nations (Uganda, Nigeria, North America, China and other parts of Asia) with varied backgrounds consisting of 10 males and 6 females (Krueger & Casey, 2014). The age of the sample ranged from 18 to 29. The inclusive criteria were that the participants should be a current undergraduate international student (levels 200 to 600) in a public university, enrolled in a regular programme and be above 17 years old. International students who have completed their programme of study or on distance were excluded. Distance students were excluded because most of them are less likely to experience the day-to-day social dynamics of a university, such as group work, face-to-face interactions, or participation in extracurricular activities. Written consent was obtained from the participants. The data collection was conducted through focus group discussions at confidential venues in the University of Ghana and Kwame Nkrumah University of Science and Technology, with 8 participants each. The composition included: University of Ghana (8 students), Kwame Nkrumah University of Science and Technology (5 students), and University for Development Studies (3 students). A focus group discussion guide with 5 main questions with 16 sub-questions was used to guide the data collection. The focus group discussions guide was piloted on 6 (4 males and 2 females) undergraduate international students at the University of Cape Coast. Sample questions from the focus group discussions included; "Explain some of the financial challenges you face in terms of scholarship/bursary, cost of living, financial anxiety and family demand", "Explain the emotional challenges you face in terms of loneliness/isolation, anxiety, homesickness and identity confusion".

The participants were assured of confidentiality and the use of pseudonyms to hide their identities. The decision to use purposive sampling was beneficial in addressing the degree of transferability of the data. Since information from the targeted group of people was focused on the sample rather than being generalized, purposeful sampling assisted in addressing transferability. To ensure confirmability, the researcher recorded every aspect of the study from start to finish so that other researchers could confirm how the study was carried out. The researcher's decision to use purposive sampling was beneficial in addressing the degree of transferability of the data. Since information from the targeted group of people was focused on the sample rather than being generalized, purposeful sampling assisted in addressing transferability. To ensure confirmability, the researcher recorded every aspect of the study from start to finish so that other researchers could confirm how the study was carried out.

The focus group discussions were audio-recorded, transcribed and analysed using the Reflexive Thematic Analysis (Braun & Clarke, 2019). These major themes were; Financial Challenges; Accommodation Challenges, Medical Challenges and Emotional Challenges of international students in public universities in Ghana. Sixteen subthemes emerged from the four major themes (Table 1).

Results

Table 1. Core themes generated during analysis

Major Themes	Sub-themes
1. Financial Challenges	• Scholarship Uncertainties • High Cost of Living • Family Financial Obligations • Financial Anxiety
2. Accommodation Challenges	• Substandard Accommodation • Lack of Proper Maintenance • Overcrowding • Unsanitary Room Conditions • Exploitation by Estate Agents
3. Medical Challenges	• Lack of Important Drugs • Limited Insurance Coverage • Unprofessional Behaviours of Health Personnel • Climate Difference
4. Emotional Challenges	• Loneliness and Isolation • Homesickness • Identity Conflicts

Financial Challenges

Scholarship Uncertainties

Results from the study indicate that international students face financial challenges in public universities in Ghana because of scholarship uncertainties, high costs of living, family financial obligations, and financial anxiety. The commonest financial challenge that students faced was scholarship uncertainties. The students described the process as fraught with extensive paperwork which were difficult to understand. Some of them shared their resentment over the scholarship process when asked, "What are some of the challenges you face with the scholarship process?"

Dealing with the scholarship system here has been one of my biggest challenges. Back in Cameroon, it was straightforward, but much more complicated here. I often feel like I constantly jump through hoops with all the paperwork to get the scholarship funds (Luna, 18, female).
The scholarship process here is very different from what I was used to back home. It took quite a while to understand how things work and eventually get my needed assistance. It turned out to be more complicated than I had anticipated (Kleman, 21, female).

High Cost of Living

In other cases, international students stated that the rising cost of living in Ghana places a financial burden on them and their studies. They stated that rent and food were expensive in the country. They also expressed their discontent with food and other services were being sold to them at higher prices than local students. Some students pointed out:

The expense of living is more than I anticipated. Everything seems to be more expensive, including rent and food. It is incredibly challenging to operate on a student budget, you know? (Willow, 28, male).
The cost of living in Ghana is expensive. International students often pay higher prices for goods and services than local students. It feels like sellers sometimes take advantage of us. (Yuri, 23, male)
As international students, sellers often increase our prices when we want to buy things. (Klenam, 21, female).

Family Financial Obligations

Still, other students explained that family financial obligations increased their financial stress in the universities in Ghana. They explained that they must send some scholarship funds back home to support their family. However, others stated that their families do not depend on them financially. These are some of the responses from the students about their financial challenges:
My family on the Ivory Coast sometimes needs financial assistance, and I am obligated to contribute to their support. It is difficult to combine this with my demands here in Ghana. (Klenam, 21, female)
My family does not depend on me financially. (Isabella, 26, female).

Financial Anxiety

Additionally, financial anxiety was a recurring theme, with the participants expressing deep concern over their ability to manage their expenses. One of them said:

Honestly, the financial anxiety is very intense. I am continually anxious about running out of money or being unable to handle unforeseen bills. It feels like a constant stressor at the back of my mind. (Wei, 21, male).

Accommodation Challenges

The study found that international students face accommodation challenges when studying in public universities in Ghana. These difficulties arose from their unfamiliarity with the local housing market, cultural differences, and language barriers. The participants in the study reported specific challenges related to substandard accommodation, poor maintenance, overcrowding, unsanitary conditions and issues with estate agents.

Substandard Accommodation
The respondents reported that substandard accommodation and facilities were the most prevalent challenges. They described the accommodation facilities as having frequent power outages, inconsistent water supply, and faulty hostel facilities. These were their words:

There is poor electrical connectivity as the power usually goes off; hence, we sleep without a fan. (Petra, 29, male).
There is no running water, and the power outages in the hostel are frequent. The study areas are always noisy, making it hard to concentrate on my work. (Oliver, 19, male).
Not all the facilities in the hostels are working correctly. Sometimes, the kitchen pipes flow; other times, they do not. The handles of the water closets do not work. (Hugo, 20, male).

Lack of Proper Maintenance
Another significant challenge reported was the lack of proper maintenance. Most participants expressed that the hostel managers were focused on collecting rent rather than maintaining the facilities in the hostels. For example, they stated that damaged electrical systems, water leaks, and broken windows were common problems left unresolved despite repeated complaints. They complained about their frustration as follows:

I have changed hostels, but in my first hostel, we hardly had water, and the rooms were not well-maintained. The authorities never attended to our complaints when we reported damages or electrical faults. (Ali, 21, female).
Whenever it rains, water leaks into my room, and some louvre blades of the window are damaged and missing, causing additional problems. (Sofia, 21, female).

Overcrowding
Overcrowding was another persistent problem that affected their accommodations. The participants stated that due to the rising enrolment and limited housing supply, they often share small rooms with others, leading to a lack of privacy and reduced comfort. Several of the participants observed:

I am staying in a shared student hostel. The rooms are overcrowded, and the living conditions are not comfortable. Privacy has become a major issue for me. (Oliver, 19, male).
I thought I would share a room with one person, but then I realised I would share it with three others, making it four-in-a-room. The rooms are small. My friends have many things in the room, and it is as if they have moved all their belongings from home to the hall, something I did not expect. (Luna, 21, female).

Unsanitary Room Conditions
Nevertheless, the participants also reported unsanitary room conditions upon arrival, which added to their discomfort. Many found the rooms unclean, with dirty floors, spiderwebs, and general neglect of the hostels. Some of them expressed their thoughts about the unsanitary nature of their hostels when asked "What are some of the unsanitary room conditions you experienced?":

We also had our rooms not cleaned before we moved in; we came to see dirty floors, spiderwebs, and unkempt room situations. We are kinder uncomfortable. (Sofia, 22, female).
I had a friend who complained of bed bugs in their rooms. When they complained to the hostel managers, they did not take her seriously, the manager thought the student was a spoilt brat, that happened in a whole semester. (sad and frowned face)…For so a whole semester she was bitten by bugs. (Lucia, 21, female).
I have to switch hostels, at some hostels hmm [mentions a hostels' name withheld], the rooms were not well cleaned before I got there.''. (Ali, 21 female).

Exploitation by State Agents
Lastly, the participants reported difficulties working with estate agents as a significant challenge in securing accommodation. They expressed that they felt exploited by agents, due to misleading property

descriptions, unfulfilled promises and inflated prices. Some of the students related thus in response to ‘’How has your experience with estate agents on campus been?’’

Communication with agents is slow. They post adverts on walls on the streets to advertise rooms, and I have had problems with rent and other payments they make. Finding a good site to go took a lot of time and effort. (Luna, 18, female).
Estate agents were not very helpful. They often did not attend appointments or provided inaccurate information about the properties. This made the search process stressful and time-consuming. (Willow, 28, male).

Medical Challenges
International students encountered difficulties when navigating health systems in Ghana, particularly concerning accessibility, quality and cost. In their response to the request, “Kindly share your main medical and health challenges you experience in Ghana” the participants shared the following related to unavailable medications, unprofessional practices, misdiagnoses, and the health impacts of climate differences.

Lack of Important Drugs
The most often mentioned problem among the participants was the lack of some necessary drugs. The students had trouble getting the same drugs they used in their own countries; hence, they had to use different brands that occasionally resulted in side effects and trouble controlling their medical issues. This is how they related their experiences with unavailable medications:

When I arrived, I was using a specific medication, but once it ran out, I could not find the same one. The alternative brand I found causes adverse reactions when I use it. (Luna, 21, female).
Managing my condition here has been challenging. The medication I require is often unavailable, and consulting a specialist who understands my condition is prohibitively expensive. (Hugo, 20, male).

Limited Insurance Coverage
Health insurance coverage was a major concern for international students. Many found that their insurance policies did not offer much coverage in Ghana, forcing them to purchase local insurance plans, which were inadequate in accessing health facilities and medications, causing them to pay out-of-pocket. They said:

Insurance coverage is a big issue for me. My Cameroonian insurance does not cover much here, so I had to get a local insurance plan. However, it is not very comprehensive. I still pay out-of-pocket for many things, which is entirely stressful. (Luna, 18, female).
My insurance from home does not cover much here, so I had to buy a local policy. However, it is not comprehensive, and I must still pay for many out-of-pocket expenses. (Willow, 28, male).

Unprofessional Behaviours of Some Health Personnels
Moreover, the participants reported encountering unprofessional behaviour from nurses and doctors at healthcare facilities, making it difficult to access healthcare. They revealed issues such as poor attitudes from healthcare professionals, long waiting times, and hospital misdiagnoses. They related their frustrations about unprofessional behaviours of health personnel at their various health facilities:

The nurses are not good for international students. They have bad attitudes and are inattentive. One day, while being injected, the nurse was on the phone, doing her own thing. (Luna, 18, female).
Yes, they talk to me nicely, but some nurses do not have time to attend to us... The doctor-patient relationship is quite different here. (Wei, 21, male).
Sometimes, I spend close to six hours before everything is concluded. It is not the best. (Ali, 23, female).
I will say the hospital process is slow. Sometimes, it is prolonged. We have to wait long before they take care of us. (John, 23, female).
One day, I was misdiagnosed and treated for malaria, which I did not have at all. No tests, nothing. (Lucia, 21, female).

Climate Difference
In addition, some respondents reported that climate differences in Ghana influenced their health. They expressed that adjusting to the changing local climate, especially during the dry season, poses a significant challenge. In their own words, this is how the climatic conditions affect one of them:

The diverse climate regions of Ghana impact my health, making me susceptible to illness; the weather in Ghana is very hot. (Diego, 24, male).

Emotional Challenges
The findings revealed that the participants faced many emotional challenges while studying in Ghana. The stress of adjusting to foreign cultural and academic surroundings resulted in loneliness, melancholy, and isolation. This was due to the students leaving their regular support systems behind. The academic performance and well-being of the students were found to be influenced by these emotional challenges. They were asked to explain their emotional challenges.

Loneliness and Isolation
Loneliness and isolation were significant emotional challenges that affected international students studying at public universities in Ghana. They stated how distance from their families and difficulties in forming friendships contributed to them feeling lonely, which affected their emotional and psychological well-being. A few of them reported their emotional challenges in these sentences.

I can identify with loneliness sometimes because my family is far away. It is not something that happens constantly. I do not have friends here, and my family is far away. Sometimes, I do not have someone to talk to, though my family has assured me that I can call them anytime. Nevertheless, it is not easy to talk to them. Loneliness is still a major challenge for me. (Mawu, 21, female).
This year, I began to feel fine. My first two years were difficult, as my classmates did not want to mingle with me. It was hard for me to find my way on campus. Emotionally and psychologically, my first two years were rough. There were about five international students who formed a company. (Ali, 23, female).

Homesickness
Some respondents expressed homesickness and a further emotional challenge they faced when studying in Ghana:
I miss my parents and home. I miss my family and friends back in Cape Verde. The time difference makes it hard to stay in touch, which makes me feel even more disconnected from home. I had high anxiety to excel and make my family proud. I also wanted to pass my exams. (John, 23, female).
I miss my friends and family, the security of knowing where I am from, and my daily routine in Angola. Being apart from my closest friends and family is difficult. (Willow, 28, male).

Identity Conflicts
Lastly, some participants expressed experiencing varying degrees of identity conflict and adapting to the new cultural environment. However, others expressed their desire to adopt a more flexible approach to overcome identity confusion. Here are some of their concerns over identity confusion:

Living in Ghana, I sometimes struggle with my identity as a Cameroonian. I feel pressure to adapt to the local culture while maintaining my cultural identity, which can be confusing and challenging. (Luna, 18, female).
I occasionally feel as though I am culturally lost here in Ghana. While here, I do not feel entirely a part of Ghanaian society or connected to my Angolan heritage. (Willow, 28, male).
Being called a Ghanaian back home by my friends is not a problem for me. (Isabella, 26, female).

Discussion

The discussions are presented under four themes based on the study's objective: to evaluate international students' challenges in public universities in Ghana. The themes identified are: financial challenges, accommodation challenges, medical challenges, and emotional challenges.

Financial Challenges

International students encounter financial difficulties that profoundly affect their academic experience and overall well-being. The study found challenges that include scholarship ambiguities, rising living expenses, familial responsibilities, and financial distress, adversely affecting the student's academic performance and general well-being. Uncertainties regarding scholarships have become a significant challenge for international students. Many students depend on scholarships for financial assistance, and any delays in disbursement might cause substantial interruptions in their studies. Previous research indicated that manoeuvring through scholarship systems with bureaucratic complexities can be challenging, thereby frequently resulting in stress and frustration (Ackah & Kuranchie, 2015; Martirosyan et al., 2019). International students often face challenges that significantly differ from their counterparts in their home countries, resulting in overwhelming and confusing feelings. Akanwa (2015) and Gopalan et al. (2019) observed that the absence of support services exacerbates these issues, leading international students to experience isolation while attempting to obtain essential resources.

The diversity of subcultures and communication hurdles inside universities might obstruct effective information dissemination, resulting in several students facing difficulty navigating scholarship processes (Gizir & Simsek, 2005). Furthermore, the high cost of living in metropolitan regions like Accra and Kumasi emerged as a significant financial challenge. Escalating inflation rates had markedly increased the prices of necessities like food and housing, exacerbating the financial pressures on students. This conclusion aligns with other research highlighting the economic challenges encountered by students in many situations (Lim et al., 2014; Smith & Khawaja, 2011). The observed discriminatory pricing practices in local markets, when international students incur higher costs for products and services, it intensify their financial challenges. This price discrimination may arise from sellers using students' international status and lack of awareness of local market prices as an opportunity for exacerbating financial strain.

Familial responsibilities impose further financial burdens on international students, many of whom experience pressure to offer monetary assistance to relatives in their home countries. This anticipation may clash with their financial requirements and exacerbate mental turmoil. Studies have demonstrated that financial obligations negatively impacted students' academic achievement and emotional well-being, resulting in heightened stress and possible burnout (Iqbal et al., 2022; Larbi et al., 2022). The need to balance personal financial obligations with familial expectations hinders students' capacity to actively participate in their academic settings, thereby affecting their college experience. The variety in family dynamics among international students indicates that financial challenges differ from student to student, emphasising the necessity for customised support services.

Financial anxiety surfaced as a widespread issue among participants, with numerous individuals voicing concerns regarding covering living expenses and unforeseen expenditures. This fear can profoundly impact students' academic performance and general well-being. Research indicates that financial stress is significantly elevated among international students, especially in contexts with inadequate support systems (Girmay & Singh, 2019; Zaoming et al., 2021). Adapting to a new financial system and the cultural norms surrounding fiscal management exacerbates their experiences. Previous studies indicate that the emotional burden of financial stress might result in suboptimal decision-making and detrimental coping strategies (Larbi & Fu, 2017).

Accommodation Challenges

One of the most urgent problems highlighted was the poor-quality housing. Many students set aside a large amount of their budgets for rent yet discover they live in poor circumstances without basic infrastructure. The fluctuating water and electrical supplies further complicates their living conditions, creating an unsuitable environment for relaxation or study. Studies confirm these conclusions: poor housing quality influences students' academic performance (Balogun et al., 2024; Bankole et al., 2019). The regular power outages and poor amenities cause tension and discomfort that affect students' well-being.

Another significant challenge emerged from the absence of a maintenance culture within the hostel administration. Many participants recounted that management regularly overlooked defective electrical systems, water leaks, and broken infrastructure. This neglect of maintenance influences the living circumstances and causes discontent among students regarding university accommodation. Previous research has also found that students frequently face more difficulties when their housing authorities fail to support them (Bampoh-Addo, 2017). Inappropriate maintenance can lead to stress, negatively impacting academic achievement, as students must navigate challenging living conditions that interfere with their studies.

Overcrowding in student accommodation is a common problem for many international students, compromising their quality of life. Rising university enrolment rates and a limited supply of homes contribute to congestion, compromising comfort and privacy in shared living quarters. Lack of personal space can create an environment conducive to stress and conflict among neighbours, thereby exacerbating the living conditions for students. Research supports these conclusions by stressing how detrimental crowded rooms are to students' mental and physical health (Gichaga, et al., 2016; Idiang et al., 2022;). Multiple roommates caused unhygienic conditions, less study time, and more stress, compromising general well-being and academic achievement. Apart from congestion, one major issue was the state of the rooms. Before moving in, many students said they arrived at their lodging to discover unhygienic living quarters, including poor flooring and insufficient cleaning. Such neglect causes bacteria and allergies, raising residents' disease risk. Previous studies have demonstrated the significance of housing providers prioritising cleanliness and implementing effective cleaning procedures, as unclean living environments have been associated with detrimental health impacts (Agbah, 2017). Maintaining a clean-living space is crucial for promoting excellent health and ensuring students can focus on their studies.

Finally, the challenges posed by estate agents were significant to international students. For individuals unfamiliar with local conventions, navigating the housing market can be particularly challenging, especially with language barriers and cultural differences. Many students reported inflated pricing and false property descriptions from estate agents, revealing a lack of trustworthiness and transparency in the housing industry. Unresponsive agents and inaccurate information create challenges that can complicate finding suitable accommodation. According to Sotomayor et al. (2022), the prevalent problem of international students' exploitation in housing transactions aggravates their difficulties locating appropriate living conditions.

Medical Challenges

International students face many challenges when attempting to navigate healthcare systems in foreign countries, which can harm their academic performance, overall well-being, and health. These issues are underscored by the results of numerous studies, which offer a more comprehensive understanding of the challenges encountered by international students in Ghana and beyond. The unavailability of essential medications is a substantial challenge for international students. In Ghana, international students reported experiencing challenges in procuring the necessary medications for chronic conditions, resulting in adverse health consequences. This issue is also reflected in a study conducted in Turkey, where international students expressed comparable frustrations regarding difficulties in accessing medication and specialist care (Masai et al., 2021). Furthermore, Zhou (2023) suggests that the intricacies of local healthcare systems have led to many international students utilising medications from their home countries. This dependence can exacerbate health issues if the necessary medications are unavailable or if the alternatives are ineffective.

Additionally, numerous international students encounter challenges regarding insurance coverage. The students’ experiences underscore the frequent occurrence of high out-of-pocket expenses due to inadequate insurance coverage. According to a study conducted in the United Kingdom, international students frequently encounter challenges associated with their insurance policies, which frequently do not correspond with the services offered in their host country (Zhou, 2023). This lack of alignment can result in financial strain and discourage students from pursuing essential medical care. Masai et al. (2021) also assert that international students' access to healthcare was further complicated by a perceived stigma associated with mental health services and a lack of awareness about available healthcare support systems.

According to the study's participants, unprofessional practices within healthcare facilities were a significant concern. Long waiting periods, poor attitudes from healthcare professionals, and misdiagnoses have been extensively documented. For example, their encounter with inattentive healthcare personnel underscores systemic issues that can undermine patient satisfaction and health outcomes. In the same vein, a study conducted among international students in Australia demonstrated that inattentiveness, cultural stigma, and language barriers frequently impede access to mental health services, thereby exacerbating feelings of isolation and distress among international students (Newton et al., 2021). The potential repercussions of misdiagnoses are particularly concerning; some of the students' experience of receiving incorrect treated for malaria and other ailments without proper testing underscores the urgent necessity of precise medical evaluations. Anoushirvani and Golaghaie (2019) have demonstrated that language barriers can result in misunderstandings between patients and healthcare providers, further complicating care delivery. Research suggests that international students frequently encounter challenges when dealing with healthcare systems unprepared to accommodate their unique requirements. They are occasionally less likely to receive the same level of care as local patients due to biases or misunderstandings (Ecochard & Fotheringham, 2017; Chen et al., 2010).

However, the influence of climate on health is an additional challenge that international students encounter. They observed that adapting to Ghana's tropical climate can increase susceptibility to maladies. Many international students encounter psychological symptoms, including anxiety and melancholy, as they adjust to new environments. This process is further complicated by cultural differences and social isolation (Anoushirvani & Golaghaie, 2019, Chang et al., 2022a).

Emotional Challenges

International students often face various emotional difficulties due to the disruption of moving to a new country for their education. The pressure of acclimating to an unfamiliar cultural and academic milieu can result in sensations of loneliness, homesickness, and isolation, mainly when support networks from one's home are remote (Ahrari et al., 2019; Boafo-Arthur, 2014). Research indicate that shifting to a new cultural environment frequently intensified these emotions, as international students experience heightened anxiety concerning language challenges, social assimilation, and academic demands (Lou & Noels, 2019; Mesidor & Sly, 2016; Zhou & Zhang, 2014). Moreover, the compulsion to achieve, driven by elevated familial expectations, might exacerbate sensations of anxiety and inadequacy (Kundu, 2019). Insufficient emotional support from host institutions such as counselling services or peer support groups can severely affect mental health and overall well-being, impeding academic and social success in new environments (Cao et al., 2021; Mesidor & Sly, 2016).

The feelings of aloneness and isolation among international students significantly impact their academic and personal lives. Participants reported sentiments of estrangement from family and a deficiency of potential friendships within the university communities. The absence of engagement with local students frequently exacerbates feelings of alienation, adversely affecting their academic and social capacity to adapt and thrive (Ackah & Kuranchie, 2015; Laufer & Gorup, 2019). Loneliness is a critical factor affecting the mental health of international students, with research demonstrating that individuals without a robust support network are more susceptible to psychological discomfort (Pedrelli et al., 2015; Ross, 2017). Some international students feel comfort in their multinational peer groups, indicating that solidarity can alleviate loneliness and isolation, while others have emotional and psychological difficulties.

The findings indicate that students suffer significant yearning and separation from their families and friends, adversely affecting their academic performance and general emotional well-being. International students frequently experienced homesickness, resulting in heightened worry regarding academic achievement and social assimilation (Azizi, 2016; Gopalan et al. 2019; Rathakrishnan et al., 2021). The emotional burden of geographical separation indicates that universities should establish robust support systems, such as counselling services and social integration programmes, to mitigate homesickness and cultivate a sense of belonging among international students (Saravanan et al., 2019).

Furthermore, the research indicates a range of identity conceptions, experiences, challenges, and adaptations among international students within a foreign cultural context. Some students possess a stable sense of identity, while others have internal conflicts during cultural immersion. The problem of identity confusion can result in considerable emotional and psychological distress, affecting their academic performance and social interactions (Evans et al., 2018; McIntyre et al., 2018). The tales suggest that flexibility in identity perception is essential for navigating encounters overseas. Adopting a fluid identity often facilitates students' assimilation into their host environment, alleviating the emotional burden associated with identity confusion (Hu & Dai, 2021; Maeder-Qian, 2018). This facet of identity serves as a source of consistency and confidence amid their experiences, which affect their overall well-being and academic involvement. The results further showed the influence of social interactions and observational learning that shape people's behaviours in social settings such as in school settings as the international students faced and tried to immerse themselves into the local settings as they interact with the local students on campuses (Bandura, 1969).

Implications for Policy and Student Support

These implications were drawn based on the results of the study for the practice of Guidance and counselling service.

1. Financially, public universities should streamline scholarship processes for international students by offering financial literacy education, and establish emergency support funds. Additionally, institutions should collaborate with local authorities to monitor discriminatory pricing and provide guidance to protect international students from exploitation. The students should also be guided to write to seek financial support and scholarships from multi-national companies like UNESCO, and the British Council.
2. Emotionally, institutions should invest in mental health services, peer mentorship programs, and inclusive community spaces that foster friendships and a sense of belonging. Encouraging identity exploration and cultural adaptation through reflective activities and intercultural dialogue can help students manage emotional stress and identity confusion. Integrating Bandura's Social Learning Theory into support programmes by promoting peer interaction and observational learning can further enhance students' coping and adaptation strategies.
3. There must be regular interaction between the university authorities and landlords to ensure regular maintenance of facilities and good prices.
4. International students should be encouraged to register and use the National Health Insurance Scheme (NHIS) to access affordable and quality healthcare service while studying in Ghana.
5. Public universities in Ghana need to establish specialized counselling programmes that address the unique psychological and cultural adjustment challenges faced by international students, including homesickness, cultural shock, isolation, and identity conflicts, while incorporating culturally sensitive therapeutic approaches that respect diverse background and values.
6. Counselling centres in public universities in Ghana should develop more proactive mental health initiatives such as peer support groups, stress management workshop, and early intervention programmes specifically designed for international students to prevent the escalation of emotional problems into more serious psychological disorders that could negatively affect their academic success and overall well-being.

Conclusion

International students in public universities in Ghana face a myriad of challenges, primarily financial, which impact their overall academic and personal well-being. The primary financial challenges include scholarship uncertainties, high living costs, and the burden of supporting families back home, often compounded by bureaucratic complexities and cultural adjustments. Accommodation issues also pose significant challenges, with students facing substandard living conditions, maintenance neglect, and overcrowded environments that hinder their academic performance and well-being. Furthermore, medical challenges present its difficulties, ranging from unprofessional practices at medical facilities to inadequate insurance coverage and a lack of necessary medications. These factors create a strenuous experience for international students, revealing the need for comprehensive support systems within the university campuses for international students to excel in all aspects of their academic, social and cultural live.

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Striving for Equality: The Forces Shaping Equal Opportunities in the Recruitment of Female Faculty Members in Iran

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Abstract

The study aimed to identify the factors that influence equal opportunities in the recruitment of female faculty members in Iran. To achieve this aim, we adopted a qualitative approach employing the case study method. The participants in the study were individuals with an experienced background in the faculty members' recruitment committee who were selected with purposeful sampling methods of criterion type. To collect the data, we used a semi-structured interview and performed a thematic analysis for data analysis. The findings showed that the views of the participants in the study about the factors that influence equal opportunities in the recruitment of female faculty members in Iran can be classified into three inclusive themes, including trans-organizational factors, organizational factors, and individual factors. The study had three implications. First, feminist theory, change theory, equal opportunity theory, and role congruity theory justify equal opportunities in the recruitment of female faculty members. Second, despite Iran's constitutional support for creating equal opportunities for the recruitment of women, the prevalence of a patriarchal culture in the Iranian academic system has intensified gender inequalities. Third, creating equal opportunities for the recruitment of female faculty members in Iran not only requires changes in institutional-level laws but also demands a shift in the culture and practices governing universities.

Keywords: Equal opportunities, Iran’s higher education, Female academic staff, Female recruitment

Introduction

Women's participation in the global workforce has grown significantly in the past decades, benefiting both women and the economies of various countries while also presenting challenges. In 1970, women accounted for 38% of the workforce, which rose to 41% in 1996 (Alaedini & Razavi, 2005). In Iran, women's economic activity stabilized after the 1979 Revolution, although women remained very active in the public arena, and the constitution guarantees equal opportunity and freedom from discrimination. For instance, the number of women employed grew marginally from 13% in 1976 to 13.39% in 2006 (Keshavarz, 2015). Despite growing awareness of the demands of gender equity and equal opportunity in employment, gender disparities continue to exist among developed and even more so developing countries. In some developed countries, such as the United States, the gender gap in the workplace has even been increasing (Llorens et al., 2021). These inequalities have consequences that extend beyond workers and workplaces since women's underrepresentation or limitations on their full engagement and career development can hinder economic development in general. Therefore, ensuring women equal opportunity in workplaces not only inspires creativity and innovation but also optimizes organizational productivity and economic development for a whole nation (Keshavarz, 2015).

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Although the number of female students in Iran has recently approached that of male students, the university environment is still viewed as largely male-oriented. Despite the quantitative rise in female faculty members in Iran's higher education over the last few decades, the gender gap has not been substantially reduced. The gender distribution of faculty members across academic ranks remains unequal (Keshavarz, 2020). According to empirical evidence, including study conducted by Shahbazi et al. (2020), Iran ranked 113th on the Gender Inequality Index in 2020. Furthermore, Rezaeinasab's (2022) study shows that, while women's economic engagement has increased relative to men since the Iranian revolution, this growth does not logically correspond to major social, cultural, and economic transformations in Iranian society. Thus, Iranian educated women face several social and cultural challenges including gender disparity at the work environment, low career opportunities, patriarchal ideologies hindering assessment of women's capacities and competences, gender doubt towards women, and gender views with priorities in motherhood and wifehood as being vital obligations of women (Safiri & Baghestani, 2014). This is in line with industrialized country studies, such as in the United States, where, although women's representation rose significantly at the undergraduate, graduate, and postdoctoral levels, they remained underrepresented among faculty (Llorens et al., 2021). Similarly, in the European Union, while women's educational attainment has risen to some extent, their representation in technical and engineering fields, basic sciences, technology, and economics is lower compared to other areas. For this purpose, the study by Ceci et al. (2014) found that in the European Union, there is approximately 50% representation of women in social and behavioral sciences and approximately 25% in science, technology, engineering, and mathematics (STEM) fields. This disparity has led to a gender disparity and a fall in gender diversity within member states' higher education systems. A look at gender representation by academic rank in Iran over the past decades also reveals that women's percentages have been significantly lower than men's at all three ranks: assistant professor, associate professor, and full professor. To be exact, in 2015, women occupied only 22.3% of assistant professorships, 14% of associate professorships, and a mere 8% of full professorships. This gender gap among Iranian faculty indicates the significant difficulty that female PhD recipients face in receiving equal opportunities in the academic world (Keshavarz, 2020). Legal, family, and cultural explanations, alongside fundamental gender stereotypes, are reported to be responsible for this gender imbalance (Ghasemi, 2022). Also, while gender inequality in organizational hiring has its roots in law and policy, the role of organizational culture and prevailing managerial environments in perpetuating this disparity should not be disregarded (Thirusanku, 2021). Based on the above arguments, the present study aims to identify the factors influencing the creation of equal opportunities for the recruitment of women in faculty positions in Iran's higher education system. It strives to provide a comprehensive and realistic picture of the present situation and to progress effectively towards gender equality in the academic setting.

Theoretical and Empirical Foundations of Study

Equal Opportunities in Recruitment

Prior to exploring the notion of equal opportunities in hiring, it is necessary to acquaint ourselves with the notions of equality and gender equality. Equality is understood as equal rights of people irrespective of gender, color, race, national and social origin, political and religious convictions, wealth, and social status (Stoilkovska et al., 2015). Similarly, gender equality entails equal treatment of women and men concerning job access, recruitment, promotion, working hours, leave, wages and working conditions, advancement, and professional education, as well as insurance and other aspects (Kostić et al., 2022). The term equal job opportunities, considered part of equal rights, reflects an organization's commitment to fair treatment of all potential employees and staff, irrespective of the characteristics required for the job (Klysing et al., 2022).

Exploring Gender Equality Theories

Gender equality in recruitment can be discussed and examined within various theoretical frameworks, such as feminist theory, change theory, equal opportunity theory, and role congruity theory. Feminist theory emphasizes the pursuit of equal citizenship rights and equal gender opportunities for both men and women (Armstrong, 2002). According to this theory, women are also human beings with natural and inherent rights unrelated to gender. Any differences between men and women are not intrinsic but rather stem from social conditions and, consequently, societal norms and gender expectations (Ahmadi, 2013). Therefore, this theory seeks changes in policies and laws to ensure gender equality in job opportunities. Change theory, as another gender equality theory, is an approach to addressing the root causes of gender inequality by altering power relations, policies, and laws. This theory leverages directives from the International Labour Organization to take necessary actions for achieving equal rights for women in the workforce (International Labour Organization, 2022). In the theory of equal opportunities, a comprehensive examination of the idea of determining destiny within a society occurs. This theory scrutinizes society's responsibility to ensure fair well-being for all individuals, regardless of race, gender, or disability, in determining their destinies. Social policies based on the theory of equal opportunities are effective for everyone who has the least chance of determining their destiny throughout their lives (Mithaug, 1996). Thus, equality of opportunities is a prevalent concept in contemporary societies, representing a dominant idea in social justice (Ferreira & Peragine, 2013).The origin of role congruity theory lies in the concepts of role theory and social role theory. While role theory assumes that expectations about roles are learned through experience and that individuals are generally aware of the expectations they hold, social role theory recognizes differences in gender roles but does not provide a definite explanation for why such differences arise and persist. Therefore, people often have stereotypical expectations for individuals in specific social positions or belonging to specific social categories. Role congruity theory contends that bias may result from perceived discrepancies between stereotypes about a social group and the expected requirements for success in a social role (Del Carmen Triana et al., 2023).

An Overview of the Employment Status of Female Faculty Members in Higher Education in Iran

According to the most recent statistics released by the Institute for Research and Planning in Higher Education in 2017, among the total 275,749 female and male professors working in Iranian higher education, 91,553, i.e., 33.2%, were female and 184,200, i.e., 66.8%, were male. Even with a tripling of the number of women faculty members from 2011 to 2020 compared to the period from 2000 to 2010, the Iranian higher education system still has a long way to achieve the desired gender equality in the employment of women faculty members (Ramezani, 2021).

A Review of Previous Studies

The issue of inequality and equality regarding gender in female employment, particularly in faculty members' positions, remains a complex, multi-faceted subject area that has been investigated from various perspectives in earlier works. Most studies (Azam Azadeh & Moshtaghian, 2016; Alonso et al., 2017; Carlsson et al., 2021; Casad et al., 2021, 2022; Keshavarz, 2020; Llorens et al., 2021; Shaditalab & Ebrahimpour, 2017; Yousaf & Schmiede, 2017) have focused on the obstacles and barriers that limit the role of women in these jobs. These barriers include women's exclusion from faculty promotion committees, family ties, limited physical, residential, and occupational mobility, limited social opportunities, lack of female elite recruitment strategies, gender stereotypes, discrimination during hiring, absence of supportive networks, a cold academic environment, biased judgments of equally qualified candidates, gender discrepancies, gender bias, lack of home support, patriarchy, organizational barriers, discrimination during applicant recruitment meetings, the presence of extra-academic selection criteria during hiring sessions, constant modifications in rules, and the presence of male-dominated lobbying networks. This range of factors, which includes the human dimensions and extent of gender inequality in higher education, restricts women's participation as faculty members. Other studies (Bryant et al., 2017; Cardel et al., 2020; Golubchik & Redel, 2018; Stoilkovska et al., 2015) have emphasized factors that augment equal opportunities and promote gender equality in women's work as faculty members. Such conditions include enhancing the university climate, encouraging professional development, strengthening social networks, encouraging an environment of equality in selection and hiring, abandoning dominant conventional policies, formulating women-supportive practices and policies, eliminating common gender stereotypes in societies against women's employment, supporting women's employment with childcare responsibilities, and reforming legislation to enable equal employment opportunities, all of which can pave the way for increased participation and attainment of women in this position.

As women's work and participation are major indicators in the modernization process of the national economy and social development (Azizi & Moradi, 2022), it is of major importance to determine the determinants influencing equal opportunities in the recruitment of women to faculties. This information can guide policymakers and administrators in formulating effective strategies to promote gender justice at the university level. Moreover, an examination of current literature indicates that most studies conducted in Iran have focused on inequality and injustice in hiring and employing women in the higher education system. In contrast, this study broadens its focus by examining factors affecting the formulation of equal opportunities and considering the constructive and positive side of the issue. Furthermore, due to differences in social, cultural, political, and economic contexts among nations, it is not possible to generalize the results of a study from developed and developing countries on equal opportunities in the employment and recruitment of women in higher education to the Iranian situation alone. This cannot provide an accurate and relevant description of the situation regarding gender-equal opportunities in the recruitment of women as faculty members. Consequently, an investigation of the specific determinants affecting equal opportunities for women's hiring as professors and instructors in a context-specific manner, based on Iran's conditions and situation, is necessary. In balance, the present study is a necessary effort to determine the factors on which the realization of gender-equitable opportunities for women's employment as faculty members depends, and can contribute to improving human resource management quality and achieving fairness in higher education.

Method

Research Method

The present study adopted a qualitative approach employing the case study method. This choice was made due to our aim of exploring the various factors influencing the phenomenon of creating equal opportunities in recruiting female faculty members. The case study method is used when researchers seek to examine a specific case from different aspects or dimensions. In this method, a case can be an event, a unit, a person, an organization, a structure, or a social activity, and the scope of the case study is determined concerning the research issue or objective (Nouri & Mohammadi, 2015).

Participants in the Study

Participants in the study were selected using a purposive sampling strategy based on specific criteria. The inclusion criteria for participation in the present study involved having a minimum of one year of experience in the faculty members' recruitment committees of educational departments and universities. Consequently, a total of 23 individuals were selected, considering data saturation (Table 1).

Table 1. Characteristics of particpants in the study

Participant Number	Gender	Experienced background in the faculty members recruitment committee	Participant Number	Gender	Experienced background in the faculty members recruitment committee
No.1	Male	1	No.13	Female	1
No.2	Male	2	No.14	Female	3
No.3	Female	1	No.15	Male	5

No.4	Female	2	No.16	Female	3
No.5	Female	1	No.17	Female	4
No.6	Female	1	No.18	Female	8
No.7	Female	2	No.19	Male	9
No.8	Female	6	No.20	Female	3
No.9	Female	2	No.21	Female	10
No.10	Female	1	No.22	Female	2
No.11	Female	8	No.23	Female	6
No.12	Female	5	-	-	-

Instrument for Collecting Data

To draw out factors that affect the development of equal opportunities for hiring female faculty members, a semi-structured interview instrument was used. Interviews ranged from 15 to 25 minutes, and with the consent of participants, sessions were taped. It should be noted that the interviewing process was conducted both face-to-face and non-face-to-face, such as telephone interviews, over about two and a half months.

Data Analysis in the Study

For data analysis, Attride-Stirling's thematic analysis method was utilized. Thematic analysis, commonly used in qualitative methods such as ethnography, grounded theory, and case study, is applied to identify, analyze, describe, and report on exploratory themes derived from the data (Ghoraishi Khorasgani & Nazarzadeh Zare, 2021). The steps of the thematic analysis method are as follows: In the first step, researchers aimed to take notes on important data by reading the interview texts. In the second step, they used a systematic framework to generate primary or foundational themes, extracting a total of 191 foundational themes. In the third step, researchers classified the foundational themes. In the fourth step, which pertains to reviewing the themes, researchers examined whether the foundational themes extracted from the interviews accurately reflected the meaning of the data. Some themes were excluded from the list due to overlap with others, while others were combined with others. In the fifth step, researchers organized and named the discovered themes from previous stages, using names that aid reader understanding. In the sixth step, researchers prepared and presented analyses in the form of a report.

Strategies for Credibility

In this study, two strategies were employed for credibility: checking by study participants and checking by peers. In the participant review strategy, researchers, at the end of each interview, recounted their overall interpretation to participants and received their confirmation or correction. In the peer review strategy, the main and sub-themes extracted from the interview texts were sent to research colleagues for review and modification, and their opinions were incorporated into the obtained themes. Ethical considerations, such as the voluntary nature of the interview process, the voluntary entry and exit of participants, ensuring the confidentiality of participants, conducting anonymous interviews, and obtaining permission for audio recording, were observed throughout the study.

Results

Based on the findings obtained from the analysis of interview content, the perspectives of experts on the factors influencing creating equal opportunities for the recruitment of female faculty members in Iran consist of three inclusive themes: trans-organizational, organizational, and individual factors, and seven organizing themes, including the elimination of gender stereotypes in recruitment, legal mechanisms, supportive organizational structure in a university, supportive organizational culture in a university, consideration of individual capabilities, attention to personal characteristics, and support for women's mental and physical health (Figure 1).

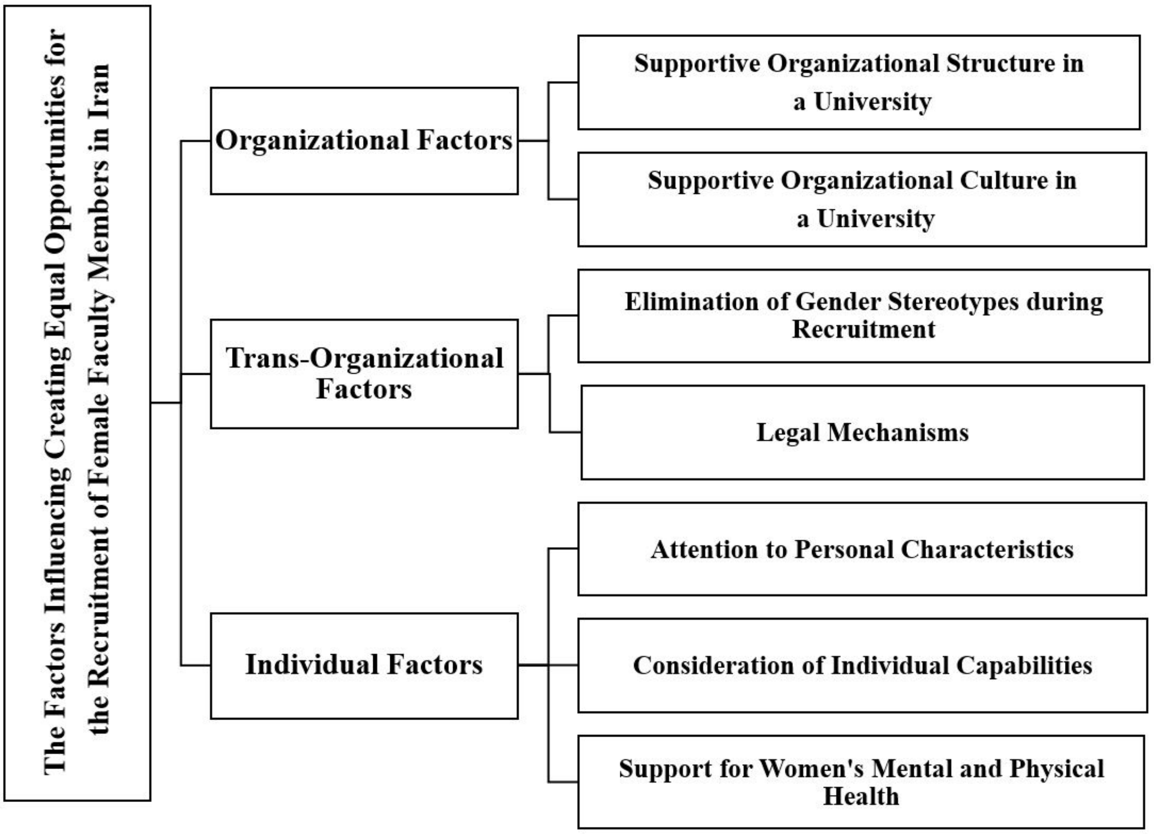

Figure 1. The Factors Influencing Creating Equal Opportunities for the Recruitment of Female Faculty Members in Iran

Trans-Organizational Factors

According to the thematic analysis of interviews with each of the study participants, the effective trans-organizational factors in creating equal opportunities for the recruitment of female faculty members in Iran consist of two themes: the elimination of gender stereotypes and legal mechanisms, which will be further described.

Elimination of Gender Stereotyping During Recruitment

The study participants believe that certain behaviors and prevailing attitudes in Iranian society, referred to as gender stereotypes, have helped to create gender disparities in the employment of female faculty members in universities. Therefore, to achieve equal opportunity in the employment of female faculty members, it is crucial to put an end to such issues as putting an end to negative judgments regarding women's empowerment, reducing employment segregation on a gender basis, and, in general, putting an end to gender stereotypes. Participant 3 acknowledged:

"The roles assigned to women and men in our society are different, and women are considered for secondary and less valuable positions, precisely because these tasks are seen as feminine."

Participant 19 also stated:

"Sometimes, no matter how much a lady strives to advance, she is still labeled. The derogatory attitudes towards women in our society and university environment are widespread, and while women's efforts are significant, unfortunately, these efforts go unnoticed. Sometimes, even female university staff in positions such as department managers are labeled negatively."

Legal Mechanisms

Study participants believe that to create equal opportunities for recruiting female faculty members, the presence of certain legal mechanisms, such as the development of recruitment laws compatible with gender equality, amending and eliminating gender bias in recruitment policies, and considering the multiple responsibilities of women, are important and helpful. Participant 9 stated:

"Gender equality is not evident in the recruitment laws in Iran, as priority in recruitment is given to men, considering them as the breadwinners of the family. Therefore, amending laws should be considered to create equal opportunities for recruiting female faculty members."

Participant 16 also mentioned:

"In university recruitment committees, women have no role, or if they do, their number is limited. Therefore, women are less present in professional positions such as councils and even in major decision-making."

Organizational Factors

Based on the experiences of the study participants, the effective organizational factors in creating equal opportunities in recruiting female faculty members in Iran are composed of two organizing themes, including support from the university's organizational structure and support from the university's organizational culture, which we will further describe below.

Supportive Organizational Structure in a University

Study participants believe that organizational policies such as recruitment and appointment in universities based on meritocracy, reduction of conflicts between male and female faculty members, and strengthening communication and interaction between male and female faculty members play a significant role in creating equal opportunities for recruiting female faculty members. For example, Participant 20 acknowledged:

"University management in Iran and the prevailing laws within universities each have their influential roles in creating equal opportunities for recruiting female faculty members. Often, male managers in universities tend to lean more towards recruiting other males than females."

Furthermore, Participant 11 stated:

"It is important that the university's hiring process is merit-based and expertise-based. For instance, during my recruitment as a faculty member, there were three male competitors, but I was hired."

Supportive Organizational Culture in a University

Study participants believe that the dominant culture and atmosphere within the organization, such as setting aside the idea of same-sex hiring in recruiting faculty members, the absence of discriminatory attitudes from the educational group and recruitment committee towards marital status in the recruitment of female faculty members, and a change in the recruitment committee's perspective regarding women's pregnancy as a hindrance to their performance in faculty positions, have a significant impact on creating equal opportunities in recruiting female faculty members in Iran. For instance, Participant 14 admitted:

"Individuals bring their beliefs into the organization, and there is still a notion that there is less inclination to recruit women in faculty positions and even in management positions because, in some universities, it is established that interacting with and communicating with men is easier than with women."

Additionally, Participant 3 also stated:

"We live in a society with a predominantly patriarchal culture where women are perceived as weak and men as the breadwinners who need jobs more. Therefore, the administrative system in many universities

is also highly patriarchal, and this is one of the reasons why women are recruited less as faculty members."

Individual Factors

According to the experiences of the study participants, the influential individual factors in creating equal opportunities in recruiting female faculty members in Iran are composed of three organizing themes, including consideration of individual capabilities, attention to personal characteristics and support for women's mental and physical health which we will further describe below.

Consideration of Individual Capabilities

Study participants believe that considerable attention needs to be given to the impactful abilities of women. These abilities include possessing high scientific research capabilities, strong communication skills, and high educational and research skills among female applicants. These factors are effective in creating equal opportunities for recruiting female faculty members in Iran. Participant 5 admitted:

"It has been observed that women tend to undervalue their own scientific and literary abilities compared to men and claim that we are less talented, while in reality, some women possess significantly higher capabilities compared to men when it comes to being recruited as faculty members."

Additionally, Participant 11 stated:

"If the abilities and talents of applicants are considered in the faculty recruitment process, not their gender, then equality occurs."

Attention to Personal Characteristics

Study participants believe that women possess important personality traits, such as diligence in performing educational and research tasks, high self-confidence, and adherence to rules, which can have a significant impact on creating equal opportunities for recruiting them as faculty members. For example, Participant 17 acknowledged:

"The capability of women to perform tasks more accurately than some men is high, as their level of precision is high, while some men, even if they lack expertise in a field, accept the responsibility, and it does not matter to them if they lack expertise in that field."

Furthermore, Participant 14 stated:

"The self-confidence of women and their self-esteem, and the subsequent belief in the competence of women by universities where men predominantly manage, can be influential in creating gender equality in their recruitment as faculty members."

Support for Women's Mental and Physical Health

Research participants believe that issues such as sharing family responsibilities in the lives of female faculty members, support for balancing family and career, and support from spouses and families for women's pursuit of doctoral studies play an influential role in creating equal opportunities in recruiting female faculty members. Participant 1 stated:

"The multiple roles of women in Iranian society, such as the roles of wife and mother, have prevented equal recruitment opportunities for women, so women need to be supported in this regard."

Furthermore, Participant 21 expressed:

"If a woman wants to do a Ph.D., typically due to marriage, child-rearing, and children, she has fewer opportunities. Even some families don't allow their daughters to attain higher studies compared to their sons, and some men will not allow their wives to study."

Discussion and Conclusion

Our study was conducted to identify the factors influencing the creation of equal opportunities for the recruitment of women as faculty members in Iran. The study results identified a broad spectrum of factors contributing to the establishment of equal opportunities for the recruitment of female faculty members in the Iranian higher education system, which can facilitate their inclusion. In the context of Iranian higher education, the most significant factors in creating equal opportunities for the recruitment of female faculty members are trans-organizational, organizational, and individual factors, which we will discuss below.

One influential factor in creating equal opportunities for the recruitment of female faculty members in Iran was trans-organizational. These factors refer to effective policies aimed at creating equal opportunities for the recruitment of female faculty members in the Iranian higher education landscape. In this regard, Konrad & Linnehan (1995) acknowledged in their study that institutional or organizational factors are crucial in establishing equal opportunities, as administrative structures are influenced by institutional pressures. The trans-organizational factors in our study include the elimination of gender stereotypes in recruitment and legal mechanisms. According to the participants in our research, removing gender stereotypes in recruitment is a key driver in creating equal opportunities for the recruitment of women in the Iranian higher education system. Gender stereotypes arise from societal perceptions of the different roles men and women play, and these roles are historically rooted in biological differences (Schneider & Bos, 2019). As a result, women worldwide have a lesser presence in the job market compared to men (Kray et al., 2017). These stereotypes and preconceptions create invisible barriers for women in organizations, known as the "glass ceiling" (Nazari, 2021). Some gender equality theories, such as feminist theory, emphasize achieving equal citizenship rights and opportunities regardless of gender (Armstrong, 2002). From the perspective of this theory, women are also human and possess natural and innate rights similar to men, and these rights have nothing to do with gender; they pertain to human existence, irrespective of gender (Ahmadi, 2013). Golubchik & Redel (2018) also highlighted the elimination of gender stereotypes in societies as a factor in achieving gender equality in women's recruitment. In addition to eliminating gender stereotypes in recruitment, legal mechanisms were identified as another effective driver in creating equal opportunities for the recruitment of female faculty members in the Iranian higher education system, as mentioned by the participants in the study. Equal opportunities are a fundamental human and legal principle that refer to creating an equitable environment for all to benefit from education, recruitment, and other significant social advantages (Shirbagi et al., 2018). Therefore, creating equal opportunities must be envisioned and formulated through constitutional law and other national and international agreements that are integral to a government's legal system (Stoilkovska et al., 2015). Article 28 of the Iranian Constitution also emphasizes the role of the government in creating equal conditions for job attainment for all members of society, ensuring that everyone has the right to choose a profession that complies with Islamic principles, public interests, and the rights of others (Taj Mazinani & Yaseri, 2013). Gender equality theories, such as the theory of change and the theory of equal opportunities, suggest changing power relations, policies, and laws in society, as well as implementing social policies for the fair treatment of all individuals, regardless of race, gender, or disability, to address the root causes of gender inequality (International Labour Organization, 2022; Mithaug, 1996). In this regard, Stoilkovska et al. (2015) also proposed legal reforms as a factor in creating equal job opportunities for all citizens, regardless of their gender.

Organizational factors constitute the second significant element in creating equal opportunities for the recruitment of female faculty members in the Iranian higher education system. These factors include a supportive organizational structure and a supportive organizational culture within a university. According to the study participants, support from the university's organizational structure is considered one of the crucial drivers in fostering equal opportunities for the recruitment of women in the Iranian higher education system. Structures, cultures, and organizational practices disproportionately disadvantage women and minority racial groups in societies (Bird & Rhoton, 2021). Thus, the roots of gender inequalities within organizations need to be explored within organizational structures (Campos-Serna et al., 2013). Organizational structure and the ensuing managerial atmosphere play a prominent role in creating both equality and inequality in job opportunities (Bush & Middlewood, 2013;

Thirusanku, 2021). For this reason, the theory of deficits posits that structural aspects governing academic environments have provided fewer opportunities and more obstacles for female academics compared to their male counterparts (Janalizadeh Choub Basti et al., 2009). Conversely, gender equality theories, such as change theory, emphasize altering power relationships and policies to combat gender inequalities within organizations. In this regard, researchers such as Casad et al. (2022); Casad et al. (2021), and Sheridan et al. (2010) highlighted in their studies the importance of improving the campus environment, nondiscriminatory recruitment, and management and leadership functions to minimize gender disparities in learning institutions. Apart from the presence of a supportive organizational structure in a university, the creation of a supportive organizational culture is identified as another significant factor that determines the establishment of equal opportunities for the recruitment of female faculty members in the Iranian higher education system, as emphasized by the study participants. Organizational culture is often defined as the shared values, perspectives, and beliefs among an organization's employees (Thirusanku, 2021). The prevailing organizational culture in most organizations reflects male desires and needs (Burkinshaw & White, 2017), leading to the emergence of the phenomenon of patriarchy or androcentrism in organizations and the subsequent prevalence of gender inequality. "Androcentrism," which focuses society around male needs, priorities, and values, positions men as the gender-neutral standard while defining women as a specific gender (Bailey et al., 2019).Iranian society is also recognized as a patriarchal community; therefore, the prevalence of androcentrism in the cultural context of Iranian universities and its impact on recruiting female faculty members are not hidden. Meanwhile, gender equality theories, such as change theory and feminist theory, emphasize changing policies and laws governing society and organizations to achieve gender equality in accessing job opportunities. In this regard, Llorens et al. (2021); Carnes et al. (2015); Sheridan et al. (2010) emphasized, in their studies, the absence of gender bias and the reduction of gender bias in favor of women in recruitment.

The final influential factor in creating equal opportunities for the recruitment of female faculty members in the Iranian higher education system is the individual factor. This factor pertains to considering individual capabilities, paying attention to the personal characteristics of female applicants for faculty positions in universities, and supporting the mental and physical well-being of women. According to study participants, focusing on individual capabilities is one of the crucial drivers in fostering equal opportunities for the recruitment of women in the Iranian higher education system. One of the obstacles to women's access to academic positions in Iran is the stereotypical assumptions about women's competencies and the misguided evaluations of their abilities (Safiri & Baghestani, 2014). However, organizations should seek applicants based on their abilities and talents, regardless of gender, to select qualified and deserving individuals (Saadat, 2018). Some gender equality theories, such as feminist theory and equal opportunity theory, emphasize achieving equal opportunities regardless of gender and ensuring fair treatment of individuals irrespective of their race or gender. In this regard, Llorens et al. (2021) demonstrated in their study that hiring evaluation criteria contribute to gender inequality. Conversely, Bryant et al. (2017) argued in their study that focusing on the competencies of women, regardless of their gender, can contribute to improving gender equality. Another effective driver in creating equal opportunities for the recruitment of female faculty members in the Iranian higher education system is attention to personality traits, as highlighted by the study participants. There is often an assumption that women lack commitment and occupational motivation for success in a merit-based environment because female faculty members are in the minority and face numerous obstacles to career success (Taylor, 2022). However, femininity is often defined by qualities such as empathy, politeness, caring, and nurturing, and these roles are recognized in society (Calás & Smircich, 2019). Therefore , paying attention to the personality traits of female applicants can also contribute to creating equal opportunities for their recruitment. Another influential factor in creating equal opportunities for recruiting female faculty members in the Iranian higher education system is supporting the mental and physical well-being of women, as highlighted by the study participants. Women employed in environments such as universities must manage their maternal responsibilities alongside academic activities without any support (Burkinshaw & White, 2017). Consequently, reasons that contribute to women's lower presence in science and academic positions, and hinder their career advancement, include childbirth, childbearing, and childcare, globally recognized as the "motherhood penalty" (Arêas et al., 2020). On the other hand, societal gender norms, which emphasize a woman's importance solely in her maternal duties, have persisted despite the industrialization of societies, preventing women's entry into the workforce (Schneider & Bos, 2019). Traditional gender roles associate women with "caretaker" roles and men with "breadwinner" roles (Kray et al., 2017). The combination of child-rearing and employment with rights poses a significant challenge for many women (Looze, 2017). However, in gender equality theories, such as role congruity theory, bias may arise from perceived mismatches between stereotypes about a social group and the expected requirements for success in a social role (Del Carmen Triana et al., 2023). According to equal opportunities theory, societal policies play a significant role in the fair treatment of individuals regardless of race, gender, and disability in determining their destinies (Mithaug, 1996). In this regard, researchers such as Shaditalab & Ebrahimpour (2017); Yousaf & Schmiede (2017) identified women's responsibilities in the family, the extensive scope of educational and family activities, and insufficient support for women at home as reasons for the low number of women in academic faculties and their scarce presence at higher levels of universities. Conversely, Cardel et al. (2020) emphasized, in their study, that supporting women's employment with a commitment to childcare is one of the factors contributing to gender equality.

Implications and Limitations

Enabling the creation of equal opportunities for the appointment of women faculty members is considered a necessity for Iran's higher education. Our study findings reveal that, firstly, feminist theory, change theory, equal opportunity theory, and role congruity theory justify equal opportunities in appointing women faculty members. Secondly, even as the Iranian constitution favors ensuring equal opportunities for women's recruitment, the pervasiveness of patriarchal culture within the Iranian higher education sector has intensified gender inequality. Thirdly, ensuring equal opportunities for recruiting female faculty members in Iran entails a change of legislation at an institutional level in addition to reforming the university culture and practices. Although the current theoretical and practical study can be of assistance to higher education managers and policymakers, it has its limitations. Initially, data were collected based on a qualitative method, and consequently, employing more diverse study methodologies can provide an improved understanding of the factors controlling the provision of equal opportunities for women's appointments as faculty members. Second, the quantity and type of participants in the study may limit the generalizability of the findings. Thus, including the views of other stakeholders in higher education, such as female candidates and university managers, would provide a fuller understanding of the determinants influencing the establishment of equal opportunities for women’s employment. Therefore, incorporating the perspectives of other stakeholders in universities, such as university managers and women applicants, could led to a sharper insight into forces shaping the realization of equal opportunities for women’s employment.

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Analysis of Students' Opinions Regarding Service Quality Related to Physical Facilities of Public Universities in Bangladesh

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Abstract

The study uses a qualitative research design to analyze the students' opinions of service quality related to the physical facilities of public universities in Bangladesh. The purposive sampling method was followed to select twelve students from multiple departments at six universities in different locations across the country. Data has been collected through a semi-structured interview protocol and analyzed using thematic analysis methods. The study uncovered inadequacies in the classroom's conventional tool setup, the library's limited seating capacity and absence of an integrated e-library, and the students' welcoming environment. New books and an updated curriculum are scarce, while the seminar room encounters inactive internet access and insufficient reference materials. There is a deficiency in the computer lab, a lack of opportunities for independent research in the laboratory, and an absence of modern equipment and essential chemicals. The ICT facilities perpetuate a traditional administrative approach within the university system. Additionally, the student residences are characterized by inadequate and unhealthy facilities, while the canteen system serves substandard food with insufficient nutrients. There needs to be more gym and sports facilities for females. Medical services are provided by substandard treatment and common medicine by inadequate doctors; students enjoy limited and scheduled transport, and an insecure campus exists; these adversely impact students' satisfaction and academic performances. Universities will take the necessary steps to enhance the quality of services, particularly related to physical facilities.

Keywords: Students' opinion, Service quality, Public universities, Physical facilities, Bangladesh

Introduction

Globalization, along with significant changes in international business and economic structures, is inducing considerable alterations in the landscape of higher education worldwide. Academic institutions often evaluate the experiences and viewpoints of students and other stakeholders to develop tactical strategies and make informed decisions. These initiatives seek to improve the external and internal quality of the institutions, thereby garnering attention and boosting their brand value on both national and international scales (Alhazmi, 2022). Conversely, due to modernization and globalization, it is imperative to enhance the education system comprehensively to instill skilled human resources capable of thriving in a competitive market, thereby enabling students to realize their full potential. Higher education institutions are transforming to adopt service industry structures comparable to industrial institutions, driven by the rising expectations of students and parents (O'Neil & Plamer, 2004). Ensuring product or service quality has gained significant attention in academic discourse. Quality denotes the intended standard of a product that fulfills the fundamental requirements and expectations of a defined target group (Şimşek, 2000). Quality denotes the state in which a service or product meets predetermined standards of excellence (Ada et al., 2017). Service quality influences student satisfaction (Cardona &

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Bravo, 2012). To improve service quality in higher education amid competition, it is essential to consistently assess and measure service quality for effective planning and program advancement.

The assessment of service quality is a crucial ancillary element in research. Quality measurement systems evaluate the degree to which a company successfully achieves its objectives, vision, mission, and operational operations. As articulated by Zeithaml et al. (1993), the notion of service quality relates to the assessment of client expectations and perceptions. A fundamental objective of service quality assessment is ascertaining an organization's status, specifically evaluating its prior performance, current status, and future aspirations (Kocapınar, 2002). Conversely, Goldstein (2009) elucidates that attaining excellence is not an abrupt occurrence but rather the culmination of high aspirations, sincere effort, intellectual mentorship, and efficient operational practices. The academic advancement and achievement of students are profoundly influenced by various factors, notably the accessibility of services and the quality of physical facilities and infrastructure within educational institutions (Küçüksüleymanoglu, 2017). Quality evaluation in higher education can be conducted through five essential criteria: method, process, infrastructure, interaction, and environment (Zineldin et al., 2011).

Thus, higher education institutions strive to enhance service quality by evaluating students' perspectives and identifying their needs, aiming to meet their expectations (DeShields Jr, 2005). Service quality relates to augmenting the value of an organization's service or product for customers, achieved through quality enhancement initiatives (Sapri et al., 2009). Service quality assesses an organization's objectives, mission, vision, and operations. Zeithaml and others (1993) characterize service quality as aligning consumer expectations and perceptions. "The comprehensive organizational strategy positions service quality, as perceived by customers, as the foremost driver of business operations," (Zeithaml et al., 1990). The fundamental and paramount principle of service quality assessment is to appraise the status of an organization. Higher educational institutions need to assess their status from various perspectives to meet students' expectations and maintain quality for future competition (Kocapınar, 2002).

The inadequacy of university facilities and educational resources adversely affects service quality, leading to discrepancies between students' impressions of received services and their expectations (Yousapronpaiboon, 2014). Every institution of higher education necessitates a competent workforce, technological assistance, and supplementary infrastructure to perform its functions efficiently. These services may be called organizational services (Đonlagić & Fazlić, 2015).

Research Context and Purpose

Higher education in Bangladesh is undergoing an extensive transition. The evolution of higher education in Bangladesh encompasses a range of systems from prehistoric times through colonial and post-colonial eras. The establishment of Dhaka University in 1921 marked the emergence of the modern institutional framework for higher education in the British colony (Kabir, 2021). During the post-independence period of Bangladesh, the current educational structure has evolved through development, change, expansion, and refinement under various governments. A significant transformation was emerged with the post-1990s neoliberal regime, which initiated the privatization of education (Kabir, 2012). Bangladesh has 171 universities, encompassing public, private, and international institutions. The total comprises 55 public universities, 113 private universities, and three international universities (UGC, 2024). In the socio-economic context of Bangladesh, government universities are essential for shaping the future of higher education students. The expansion of higher education and the significant increase in enrollments contrast with growing concerns regarding the quality of education in these institutions, raising questions about the effectiveness of such education (Ali et al., 2021). Numerous issues persist regarding the quality of service in infrastructural facilities and the sufficiency of resources in these institutions, which students consistently encounter during their studies and research activities. Students are considered the primary customers in this context (Hill, 1995; Cardona & Bravo, 2012). It is essential to analyze and understand the status of service quality in physical facilities and its impact on academic performance and student satisfaction based on student opinions. This study aims to thoroughly analyze the service quality of physical facilities in public universities in Bangladesh, as perceived by students. Based on student opinions, highlighting the strengths and weaknesses of the existing physical facilities will create an opportunity to identify directions for infrastructure improvement. This study's findings will contribute to enhancing the learning environment, improving student outcomes, and informing decision-making by university administrators and policymakers.

Method

A phenomenological qualitative approach was followed to conduct the study to gain an in-depth comprehension of the phenomenon (Cresswell, 2013). Following the nature of the research and the questions posed 12 graduate and postgraduate students of public university from various faculties and departments of six universities situated across the country were selected as respondents through convenience sampling. The responses exhibit gender parity with six males and six females, and their ages range from 24 to 30 years. To address participants, researcher used two codes accordingly (PM=Participant Male & PF=Participant Female).

The research aims to analyze the students' opinions of service quality regarding physical facilities; therefore, the researcher prepared an interview protocol that outlines the instructions and guidelines for conducting the interviews. The semi-structured interview schedule was developed by incorporating open-ended questions and sub-questions that were posed based on the responses provided by the individuals interviewed. The questions being addressed pertain to the provision of physical facilities at public universities in Bangladesh. The questions were submitted to three subjective and linguistics experts to assess and validate the items' clarity and validity. The questions were finalized following a pilot test with two participants. Sub-questions and associated subjective questions were employed; each interview lasting 30 to 40 minutes per respondent. Interviews were done by telephone and recorded using Android recording applications with the respondents' consent. The documents were transcribed using the web https://flixier.com software. Subsequently, the researcher refined, edited, and coded the data.

The data was analyzed using thematic analysis, a widely employed qualitative data analysis method for identifying, analyzing, and reporting findings (Braun & Clarke, 2006). The researcher documented all transcribed conversations and categorized themes and subthemes using inductive and deductive techniques. Finally, the researcher evaluated and interpreted principal themes by incorporating sub-themes.

Findings and Analysis

The researcher analyzed multiple themes from the study's collected qualitative data. The components are Physical Facilities, Library, Classroom, Student Residence, Food and Canteen, Health and Medical Services, Transport and Communication. The data has been classified, and the analysis is reported as follows:

Physical Facilities

Most interviewees (N=10) disclosed that their university has inadequate infrastructure. However, some participants were satisfied with their department's physical facilities but not with the capacities of other faculty and departments. Some students claimed that this is the era of research and technological revolution. However, most universities still need to be digitalized, and there is a massive scarcity of research with modern and updated equipment. A participant said:

"Our faculty has magnificent buildings and a good environment, but we often hear of classroom shortages in other faculties. Every classroom is clean with enough AC; seminar rooms, library, and computer lab are student-friendly." (PM1)

Classrooms

Most participants (N=7) disclosed classroom crises in their departments; conversely, N=5 indicated satisfaction with the number of classrooms available. More than half of respondents indicated that the classroom size and capacity need to be improved relative to the student population in their department. Conversely, most classrooms continue to need more materials. Several departments continue 5 to 6 regular batches while having only 3 to 4 classrooms readily available. Due to the shortage of classrooms, frequent changes to class routines have disrupted students' teaching and learning processes. Many indicated that, despite modern science and technological advancements, the classroom continues to adhere to traditional practices. In certain instances, disparities exist in allocating classrooms among various departments within the same university. Some departments possess classrooms equipped with modern digital facilities, while others need essential classrooms. Furthermore, the existing classrooms often need to be more adequately supplied with necessary materials, which disrupts student concentration and hinders effective learning. One of the respondents stated about classroom inadequacy in the department. She said:

"We have just three classrooms for five batches. We wait longer to start class for a vacant classroom, so we sometimes cancel a class, which wastes our valuable time." (PF7)

Library

The researcher discovered that all participants (N=12) acknowledged the existence of a central library at their university. However, the majority expressed that the seating capacity of the library needs to be improved for the overall number of students. This phenomenon is evident in extensive university libraries. The library was a primary concern for many students regarding infrastructure and learning resources. Students arrive early in the morning and queue to get seats in the libraries of big universities. The current number of students exceeds the library's seating capacity, resulting in many students leaving the library owing to insufficient space. Most respondents (N=10) indicated that the library remains partially non-digital and adheres to conventional standards and procedures. In this instance, perusing conventional catalogs is revealed to be arduous and time-intensive. Many students asserted that their library's reading atmosphere needs suitable student-friendliness. Several respondents disclosed that the library possesses an extensive collection of old books but many complained that the syllabus is deficient in contemporary and modern scholarship. Several respondents asserted that the library needed an environment conducive to academic study and research, noting that individuals typically use the library for job-related reading; this detracts from or impedes students' focus on academic and research pursuits. Most respondents indicated that the absence of digitization constitutes libraries' primary challenge. Consequently, students (N=12) are prohibited from entering with own books and baggage. Although the library engages in reading books, it is permitted to borrow just a certain quantity of books for a specified duration. Students desire to study in the library; moreover, there is a need for more seating. So, they endure significant difficulty reading in the library. One of the students expressed:

"The need for resources and facilities is insufficient relative to the student number. We arrive early to get a seat or to ensure space in front of the library. We frequently depart from the library because of a need for more seating. Furthermore, there are only two hundred seats for four thousand pupils available in the dormitory reading room." (PM1)

The absence of modernization in libraries hinders their academic pursuits. They believe that, despite the contemporary times, the absence of library digitalization, insufficient availability of new and updated books, uncooperative behavior of librarians, and inability to provide a conducive study atmosphere discourages many from utilizing the library and engaging in academic research. Students regard them as elements in their demonization. For instance, three expressed the same opinions and the following perspective in this context:

"… library seating capacity is inadequate and poor. We cannot utilize the main library since we cannot bring our books. Our library cannot track or transact books digitally, but we can issue them manually for a particular duration." (PM3, PF4 & PF10)

Curriculum and Books

There were two distinct views on whether the library and seminar rooms had new and curriculum-related books. Many (N=7) expressed that the library and seminar rooms have enough books. A few (N=5) stated that the library does not have current and curriculum-related books specially books in native language. The library and seminar rooms need more of the reference and syllabus books professors refer to during class. The library has many antique books. Since the library is a job-oriented study, the authorities are apathetic. So they need to show responsibility in bringing new syllabus books. One of the respondents stated:

"... library revealed that the recommended books were unavailable. If you seek scholarly books, the personnel's reaction will be unimaginable because they don't think anyone would search for anything other than job-related books in the central library. Thus, you will encounter many unseen barriers and feelings you cannot comprehend at first glance." (PF2)

Seminar Rooms
The departmental seminar room is a small library. Students collect department-specific books, journals, and educational tools here. Students can do group work, study, and find reference books during and after class. Some (N=6) have complained that seminar room amenities are not supplied despite students paying a fee annually and seminar room is rarely opened and closed by following time table. There are inadequacy of internet, computer service and reference books. Thus, it does not benefit them. A participant stated:

"..Indirect pressures…. seminar room personnel aren't friendly and helpful to students. It is closed infrequently so we could not study the full day because of such an environment. There are no computers or WiFi to use my laptop." (PM1)

Computer Lab
The integration of technology and computers in contemporary schooling is indisputable. Every department must possess a computer lab as an essential component of contemporary education. In this context, nearly all respondents (N=10) acknowledged the presence of computer laboratories in their respective departments, yet they deemed these facilities insufficient relative to the students number. Students are not permitted to utilize the computer lab at their discretion. Many departments may utilize computers during classes in ICT-related courses. Additionally, several departments use other departments' lab which hinders student learning and undermines computer education.. According to a respondent:

"Our department has 60–70 students but only 15 lab PCs. Thus, students cannot use the computer lab freely. We can only use the computer lab during ICT classes." (PM5)

Laboratory
Some university students (N=60 said they are sent research data to external labs because of their underdeveloped labs, and it is challenging and time-consuming. However, it hinders research and educational pursuits. The laboratory has been criticized for its out datedness. Many have highlighted the lack of chemicals, elements, and materials for science and technology experiments and research in the specified courses. Many students claim that the university and government do not fund extra for lab science and technological researches. Most students (N=10) recognized that the scarcity of budget, guidelines, spirit of discovery, and lack of provision of adequate facilities discourages new research activities compared to universities of developed countries. A student complained that the lab lacked sophisticated mechanical practical research tools. Some claimed that desperate lab equipments and tiny laboratories limit testing and independent works. Many indicated that some departments had just one lab for 4/5th graders and needed more equipments. A participant expressed:

"….laboratory facilities are inadequately equipped and underdeveloped. Occasionally, we send to external laboratories because chemicals or elements are sometimes required, which may not always be available, resulting in research delays. The university allocates limited financial assistances. Our laboratories require installing new instruments and capabilities for sophisticated research compared to laboratories in the world's best-ranked." (PF4)

ICT Infrastructure
A majority (N=10) of the students expressed that the university's ICT infrastructure needs improvement. Modern digital boards are absent despite the presence of computers and power points in the classrooms.

Teachers utilize conventional boards for conducting classes. The primary complaint was that each university library continued to operate under conventional management. Books are issued by recording in the ledger. Students are restricted from entering into the library with their own books and belongings due to conventional system. Each student (N=12) recognizes that library lacks Internet connectivity with international institutions, libraries and research centers; consequently, international journals, books, and research papers are inaccessible even when needed. None of the universities have yet to archive their research and thesis papers online hub in the central library. Consequently, students and researchers use conventional means to locate and peruse printed materials. Despite establishing mobile banking for university various fees, most universities is not still used the online payment system. Indeed, all university websites have yet to be completely transformed. For instance, faculty profiles, departments and institutes need access to comprehensive information. To obtain certificates, mark sheets or requisite documents, students must adhere to conventional procedures and visit multiple administrative offices a long duration. Not all universities have implemented student portals and identification systems on their websites. One individual stated:

"Our century-old university does administrative and student office activities using traditional methods, which is the most significant disadvantage. The website information about all departments and faculty members needs to be updated. There is no student portal or online mechanism to pay fees; instead, one must queue at the bank. Students need to submit applications to obtain certificates, mark sheets, and other documents in traditional mood. University libraries utilize conventional catalogs. It is not associated with foreign libraries, research institutions, or universities for research papers and has yet to digitize soft copies of theses and articles." (PF2)

Students' Residence

All (N=12) students confirmed that their university has halls of residence, yet they need to be significantly more in student numbers. Most students in big cities and old universities have shared severe dissatisfaction with their residence issue. Initially, it is stated that dorms accommodate more than the number of students compared to the allocated seating capacity. Each room accommodates more students than its capacity allows. Secondly, hygiene is not adequately maintained and there needs to be more hygienic washrooms. The majority of students claim that the seating arrangement in these dormitories is contrived. Students are meant to serve as agents of the ruling party and political students' organizations. It is fundamentally an endeavor to establish two distinct classes on campus and inside the state. One class ruler and another is a subordinate to ruler; Students are used as instruments for upholding the supremacy of the rulers. This technique has been executed astutely for an extended period, perpetuating the seats problem in the university residence halls. Eliminating the accommodation crisis will free students from the tyranny of the rulers. Students believe that the university administration and state policymakers are cognizant of this dilemma and issue; however, they need to address it. Students asserted that despite the presence of systematic administration in the halls, the overarching control and management are fundamentally dictated by the political leaders of the dominant group of students. They allocate excess students other than the specific seats to fulfill their political aims. Newcomer, conversely, accommodates 30 to 50 pupils per room. Its sole objective is to develop these students' political agenda and assist their party. Additional issues in residential settings encompass inadequate internet connectivity, insufficient cleaning services, and unsatisfactory sanitary conditions, particularly in female students' dormitories. Moreover, students cannot study effectively due to insufficient reading rooms and amenities for each student in dorms. Conversely, students cannot get peaceful, pleasant, and tranquil sleep due to an inadequate atmosphere. A student described:

Our dorms lack the amenities and atmosphere for a student's physical and emotional well-being. The rooms are overcrowded; more students stay than the capacity. The dorms' sanitary and sanitization needs to be cleaner and hygienic. Non-tiled washrooms have bad conditions and an unhealthy environment. The big problem is that dorms are politically controlled, and students face facility crises; we are forced to attend political programs. If I do not attend, I could be kicked out of the dorm or denied a room seat (PM1).

Canteen and Food Service

Regarding the service quality offered by the university, all students (N=12) equally expressed their dissatisfaction with the canteen and food services. It has been claimed that the food provided in the residence halls and university canteens is sufficient for survival only. The provided foods don't contain necessary nutrition and protein. A level of stamina or mental strength can only be maintained for a short time with the supplied nutrition. This nutritional insufficiency poses significant obstacles to academic performance. Conversely, all participants claimed that there is limited diversity in the food offered, with almost the same meals provided daily, and that cleanliness standards aren't followed in the preparation and serving. Conversely, the canteen proprietors provide lower-quality and inadequate quantities of food at high rates, owing to no subsidies from the institution or government. There is no kitchen facility for students to prepare their meals by own, nor a refrigerator for storing purchased food. The students perceived university administrators' absence of monitoring and supervision as a big issue. Simultaneously, the absence of accountability from the university administration compels students to tolerate a miserable life with poor food quality. One respondent remarked:

"...physical well-being is essential but the food served doesn't provide nutrition or mental stamina to study for a long time. Some common items are provided which is enough for a student's intellectual development and health. The cooking quality is poor and the quantities are limited. Many students are not able to accommodate food from outside." (PF4)

Gymnasium and Sports Court

Most respondents (N=12) agreed that their university has a central playground whereas (N=6) confirmed the absence of a gymnasium on campus. However, there is a consensus that gymnasiums need more equipment for sports and physical activities. Female participants (N=5) disclosed the lack of opportunities and facilities for females to engage in sports and physical exercise. It revealed that a type of gender discrimination persists in universities regarding sports and extracurricular activities; as girls are not encouraged to participate in physical activities and sports and observed some reluctance regarding women's involvement and organization in sports activities. Female students (N=2) claimed that their university maintains distinct gymnasiums for men and women separately and sports events are scheduled on different occasions.

"Despite having a central playground,.....lacks awareness, opportunities, and a safe environment for girls to exercise, play sports, and enjoy entertainment. I feel that there is no freedom based on gender in our university. There are facilities but comparatively fewer opportunities for girls in terms of sports or participation in co-curricular activities and there is a sort of reluctance based on gender." (PF2).

Health and Medical Facilities

Most respondents (N=10) expressed dissatisfaction with the medical and health services offered by the university. Students have pointed out a deficiency in excellent medical services and one of the most problematic sectors. There are not qualified and sufficient doctors. Participants witnessed that the medical center frequently dispenses common treatment without doing any diagnostic tests. Most respondents claimed that the medical center needs modern testing equipment and technologies. Conversely, female respondents (N=2) indicated that there shortage of female doctors to discuss their personal issues and health concerns. The principal complaint was the inadequate utilization of current university resources and facilities. The main issue was that the physicians and staff at the medical center did not treat the students with respect and commitment. They referred students to the government medical hospital in case of intricate and challenging treatment. Each medical center has an ambulance but it can only be provided services with recommendations from authoritative sources in emergency. Several students, however, acknowledged that the medical center offered them fundamental treatment and medicines free of charge. A student stated:

"There is a crisis of modern technology and equipment; and service is not provided sincerely and appropriately by existing resources with respect, commitment, cooperative mentality. The doctor does not even bother to check or test, no matter how chronic your problem. They will give common medicines by roaming around. These hurt my self-respect, that there is no honesty."(PM11)

Campus Environment

Many students have also voiced grave complaints about the atmosphere on campus. A student at a large university characterized their campus setting as 'Culture Shock.' Outer people's uncontrolled and unrestricted movement and entrance into campus significantly impede educational activities and the overall campus environment. Most respondents (N=8) confirmed that their campus gates are open, allowing unrestricted access for outsiders which many perceived as a security concern particularly for female students. Many students have seen the rampant and unrestrained engagement in student politics on campus as a significant challenge for an effective study and research atmosphere. Most students, particularly female students (N=5), expressed concerns regarding the cleanliness and hygiene on campus, citing a significant deficiency in sanitary facilities. One commented:

"I encountered a profound culture shock at university. By "culture shock," I refer to the university providing all amenities except for an appropriate learning environment. This environment discourages students who wish to study. There are security concerns on campus due to the lack of restrictions regarding mass entry into campus premises. There exist political issues and other challenges." (PF2)

Transport and Communication

Most interviewees (N=10) recognized that their institution provides a bus service for students, while other participants (N=2) stated that their university offers a shuttle train for student transportation. Nevertheless, most students claimed that the quantity of transportation and routes significantly inadequate proportional to the number of students. Students of city find public transport adequate but the associated costs are excessive and uncomfortable. Some universities are situated in remote area and distant from the central city; students frequently miss classes and exams if they fail to get onto the scheduled bus for not available public transports. Certain universities possess a limited number of bus routes. Many female students claimed overcrowding in buses and trains to be a factor in harassment. All these elements adversely affect the student's mentality, impacting overall academic performance including classes and examinations. One of them stated:

"Our university is located far from the city, so we fall into trouble even if we miss classes and exams because there are not enough public transports. We need more buses and routes schedules. As public bus is crowded, we, female students, face harassment sometimes. These disrupt the mental balance and make us tired, diminishing interest, eagerness, and motivation toward studies." (PF8)

Discussion

Education in Bangladesh is the focus of renewed discourse both globally and nationally after pandemic Covid-19. On the other hand, the fourth industrial revolution is prompting each state and nation to gear up anew. In this context, the critical challenge is to develop skilled and competitive human resources. Consequently, it is imperative to assess the total capacity of public universities in Bangladesh. Measuring the service quality of higher education institutions enables an understanding of capabilities, existing status, shortcomings, and prospective areas for development. In this regard, the foremost dimension of service quality within the institutions is the assessment of physical facilities. As the primary stakeholders of the educational institution and direct beneficiaries of its services, the research findings and decisions significantly influence the perceptions and opinions of the students. The actual state of an educational institution's physical facilities is a crucial indicator of student satisfaction and influences academic performance. This qualitative research highlights students' perceptions of service quality regarding the physical facilities of public universities in Bangladesh.

The present research indicates that most students face inadequate services related to the physical facilities of their universities. Consistent findings have been reported in prior investigations within this field (Alam et al., 2021; Jaber Hossain & Islam, 2012; Rahman et al., 2020; Ullah, 2020). Physical facilities exist in every institution, yet they still need to be improved compared to the student number and requirements. While students in specific departments acknowledged satisfaction with their faculty facilities (Islam & Himel, 2018); but they reported dissatisfaction with the facilities of other departments. Numerous previous research findings indicate a significant correlation between the quality of university physical facilities and student satisfaction (Barua & Uddin, 2021; Haque et al., 2011).

Specifically, adequate infrastructural services such as suitable classrooms, well-equipped libraries and ICT facilities enhance students' academic learning and performance (Chowdhury et al., 2018; Nehemiah, 2023).

The study's findings disclosed that more than half of the departments were dealing with a classroom crisis, with the majority of classrooms being inappropriately sized proportional to the number of students. Classrooms with the proper materials and technology are crucial for adequate learning opportunities and perfect learner instruction; moreover, many classrooms rely on conventional systems (Azad, 2024; Ullah, 2020); but quality teaching-learning require classrooms equipped with sophisticated technological teaching aids and learning resources. The digitalization of classrooms is essential for effective, sustainable and pleasurable learning; moreover, there needs to be more consistency (Sarkar et al., 2012). Conversely, since the advent of COVID-19, the proliferation of digital classrooms globally has been prevalent, and distance learning has emerged as an essential tool for conducting educational activities. But numerous studies reveal a significant disparity in higher education in Bangladesh during and following the pandemic (Ahsan et al., 2023).

Many studies about libraries services have indicated that library materials, staff competencies, service orientation, attitudes, and tangible facilities significantly influence students' satisfaction or dissatisfaction with library usage (Alam & Mezbah-ul-Islam, 2023; Edwards & Browne, 1995). However, most students expressed dissatisfaction with the library's physical facilities and environment for studying and doing research. The seating capacity at large universities such as Dhaka University Library is severely inadequate compared to the number of students. Consequently, students have to queue early to get a seat. Libraries are not yet fully digitized; there are inefficiencies and limitations in automation processes, online accessibility and e-library resources (Zabed et al., 2009). The old way of operating has resulted in delays in student service delivery. Due to the absence of digital access, students are restricted from bringing their essential books and bags into the library which is regarded as a significant inconvenience and obstacle to utilizing the facility. These libraries have no interactive connectivity with foreign libraries, universities and research institutions to obtain modern knowledge and access recently published articles. The library's inadequate status significantly detrimentally affects student academic performance and the growth of learned human resources while creating to student dissatisfaction (Andaleeb & Simmonds, 1998; Roknuzzaman, 2007; Sarkar, 2012).

A library needs modernization, digitization, and current curriculum-related books, journals, and research papers as the globe advances in science and technology. It is necessary to establish an e-library to preserve online access to books and research works (Tabassum, 2023). The department's seminar room has reference books, but the university library is full of entirely of ancient literatures. The current study also found that Bangladesh's science curriculum still needs to be updated to the international standards (Aminuzzaman, 2011; Andalib, 2003). The curriculum needs to be worldwide standard so that students could go overseas with scholarships to become trained resources (Ahmmed, 2013).

Seminar at department' is considered as mini-library for studying and group work. Though older prominent universities offer this but newer rarely meet this services which shows the university's infrastructure challenges. Many departments’ seminar rooms lacks necessary reference materials or journals for students; and personnel's lack of professionalism and cooperation affects students (Alam et al., 2021). Inadequate computer and internet WiFi in seminar rooms negatively impact students' academic performance and lead to significant discontent (Barua & Uddin, 2021).

The study disclosed the inadequacy of computers compared to the number of students in the computer lab. Computer learning and training are essential to sustain in the technology-based era (du Plessis & Webb, 2012), but students can only learn independently rather than in ICT-related courses. Several earlier studies (Sarkar et al., 2012) have distinctly addressed the deficiency in knowledge and scientific advancement in higher education in Bangladesh, along with the deficit in highly trained workforce and innovation. The absence of opportunities for students to engage independently and willingly in the laboratory, the deficiency of essential materials, equipment, and chemicals, insufficient funds for research, and the unavailability of advanced equipment for both fundamental and new research have collectively hindered students' motivation to innovate and pursue research (Haque et al., 2011).

Multiple studies have found that most universities' library and student services are still maintained in the conventional way, which delays student services and causes dissatisfaction (Chowdhury, 2011). Students are suffering and struggling to pay university fees to the bank and collect certificate mark sheets. This study demonstrates that ICT management facilities are limited (Zabed et al., 2009). The system needs a student portal where they will get all the academic notice-information updates, course selection, assignment-project submission, course results, university calendar, and so on. The analysis also figured that public universities' ICT infrastructure reveals the academic information, faculty profiles, and course offerings deficiency on the university website (Islam & Selim, 2006; Rahman, 2021; Shahriar et al., 2016).

Current research highlights student accommodation as a crucial component of physical facilities service quality revealing that this issue is the fundamental concern in all universities. In urban universities, dormitories are essential for a safe, student-friendly and smooth academic life. However, students' dissatisfaction with housing issues is evident (Choi &Seo, 2021; Tajwar, 2024). However, healthy and peaceful student housing is essential for academic activities (Onifade, 2021). However, the dormitory regulation by the ruling party's student organization willingly created the housing crisis than required quantity which affects students' mental academic performances. The unhygienic washrooms in existing dormitories starkly illustrate the housing problem particularly in girls' dorms. The overcrowding, political control and poor management, forcing to attend in political programs and guest rooms, poor internet connectivity, non-regular cleaning, and inadequate governance affect student proper growth (Ullah, 2020; Sarkar et al., 2012; The Daily Sun, 2019).

Quality and balanced food service is essential for students' physical and mental development (Cano & Hijada, 2024; Wenjing, 2019) and physical amenities (Raihen et al., 2023) affect satisfaction. Students survive on the food that is served at higher prices. Catering hygiene management, catering service, food quality, and environmental and corporate social responsibilities are essential (Ji & Ko, 2022). However, students are provided with limited items of unhygienic food. However, the food served in university canteens should meet nutritional and protein needs. Students in public universities necessitate government and university subsidies for ensuring nutritious food through maintaining an annual food calendar (Mohiuddin & Chy, 2015).

Along with academic and research activities, sports and exercise facilities are essential for students' physical and mental growth (Ullah, 2020). Though every university has a central playground but students are dissatisfied with the lack of adequate, necessary and modern equipments in gymnasium. Despite a few universities having girls' gymnasiums; the study found a culture of discrimination and reluctance towards women in sports and physical exercise.

According to Nekoei-Moghadam & Amiresmaili (2011), healthcare facilities are the most vital service after university housing and food. This study found strong dissatisfaction with university medical facilities with existing medical centers (Barua & Uddin, 2021; Rahman et al., 2020). The shortage of doctors particularly female doctors and modern medical equipment are limited; thus, the medical centers mainly provide primary care and common treatments with some free drugs (Ullah, 2020). The big allegation is that doctors and staffs do not behave with students with respects. Emergency ambulance services are limited and doctors referred to government hospital in complex disorders which shows the poor state of medical service. of female doctors compared to female students is a significant complaint (Monem & Baniamin, 2010).

Effective and efficient education requires a student-friendly and safe campus (Akter & Uddin, 2018). In this study, culture shock prevents universities in Bangladesh's big cities from conducting normal and welcoming educational activities (Monem & Baniamin, 2010). Most campuses allow outsiders to enter which makes students feel unsafe specially female. Related studies also (Haque et al., 2011; Tajwar,

2024) highlights the need for cleanliness, peaceful and noise free environment in universities located in large cities. Students need more seating, entertainment, and lovely landscaping on campus.

Every institution transports students and faculty by bus or train, but the number of routes and buses are inadequate to the number of students. This study also revealed due to inadequate bus service and public transport students fail to attend classes and exams on time where university is located far from city (Rahman et al., 2020). Due to poor seating and overcrowding in transports significantly impacts students' mental health.

Conclusion and Recommendation

This study mainly analyzed the students' opinions regarding physical facilities' service quality. The study's findings indicate that students are more or less dissatisfied with almost all physical facilities. Students expressed profound dissatisfaction with residential accommodations, ICT facilities, laboratory amenities, library services, and canteen and food facilities. Furthermore, while some positive opinions are expressed regarding the facilities of other factors but it is noted that inadequacies are prevalent in most instances. Inadequate physical facilities adversely impact academic performance and reflect student dissatisfaction. Consequently, it is recommended that university administrators and policymakers pay close attention to enhancing all physical facilities including student accommodations, university ICT, laboratories, libraries, and dining facilities. Moreover, student satisfaction and academic performance could be increased by enhancing the quality of physical facilities and ensuring effective management and monitoring.

Limitations of the Study

This research is conducted based on the perceptions and opinions of students. However, there is also an opportunity to evaluate the opinions and views of various stakeholders including teachers, researchers and university administrative personnel. Because of constraints in both time and cost, this study has only been carried out at six different public universities. There are many modern and research-related tools and scales to measure academic and non-academic service quality; but in this study, an attempt has been made to reach a conclusion based on the opinions of students. This will create an opportunity to research on other dimensions in the future.

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Autonomy and Academic Freedom in Universities: Country Examples Based on Types of Governance

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Abstract

The first university in Turkey is Istanbul University, which was established in 1933. The purpose of this research is to qualitatively and quantitatively compare the "organizational, financial, staffing, and academic autonomy" aspects of higher education in the models of decentralization (UK), federal (Germany), and centralization (France and Turkey) based on the results of the European University Association (UAE) University Autonomy in Europe, and to make comments and suggestions for higher education in Turkey based on the comparison results. The 13th, 14th, and 15th centuries saw an increase in the number of universities in medieval Europe, and they have continued to exist to this day. In European universities, the Humboldt model emerges in the early 19th century. Humboldt and Schleiermacher, while discussing the dual structure of universities, which includes scientific research alongside the teaching duty that leads to knowledge, highlight this dual structure as the distinguishing feature of universities compared to schools. The Humboldt model was implemented in the USA and Japan after World War II. In this model, a master's degree, doctorate, and habilitation exam have been introduced to become a professor. In this research, the autonomy dimensions of the 3 countries selected as models have been shown in tables for comparisons in the ranking of 35 countries. Turkish universities do not rank within the top 400, and they have no academics that have conducted research and won a Nobel Prize.

Keywords: Universitas, Freedom, Autonomy

Introduction

"Although a connection is made between the establishment of universities during the Ottoman period and the founding of eight madrasas known as Sahn-ı Seman, built on the southern slopes after Fatih Sultan Mehmet demolished the Church of the Holy Apostles in 1453 and removed the surrounding graves to construct a mosque in the middle of this plain" (Ergin,1939 p. 83), this claim stretches beyond the concept of universitas. These schools were traditional institutions based on religious references (Şanal and Alaca, 2023).

Lewis (1988), wrote the following about the first higher education institution under the reforms of the 19th century "Despotism and Enlightenment" subheading (p.180):

"*Among the education reforms) the greatest of all was the establishment of a Turkish university." This bill, which was first discussed in 1845, faced many difficulties and fell victim to a series of never-ending attempts. The Darülfünun, which was named Istanbul University, was only able to open its doors in August 1900*" (Ergin, 1939, s.997).

During the Ottoman period, the Darülfünun and the İnas Darülfünun for women were established (Dölen, 2006). In 1932, Atatürk invited pedagogy professor Albert Malche to Istanbul and asked him to

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prepare a report on Darülfunun. According to Malche's findings, "Turkish scientific publications are lacking, the teaching method is outdated, and the students' foreign language proficiency is inadequate..." Most importantly, the poorly paid professors, most of whom were inadequate, were doing work outside of their classes (Malche). In 1933, this institution was closed, and Istanbul University became the first step for Turkish universities.

Turkey's first universities are Istanbul University (1933), Istanbul Technical University (1944), Ankara University (1946), Karadeniz Technical University (1955), Ege University (1955), Atatürk University (1957), and Middle East Technical University (1959), making a total of seven (Kömürlü, 2019)

Philosophical and Systemic Developments Related to the Scientific World in Europe
Özsoy and Balyer (2023) discuss how the processes of the Renaissance and Reformation influenced the concept of the university, emphasizing the autonomy of universities and the preservation of the prestige of scientists. They also highlight the prioritization of research over teaching.

University Expansion Efforts in Europe
The establishment of the university in Perugia, Italy, began in 1306. From June 27-29, 1306, the city council of Perugia decided to establish a university focused on two branches of law. According to the city's decisions, the university needed to be recognized as a general educational institution by the city through a papal privilege. (Zhang, 2010, s.25). This is an example of autonomy. Perugia University is currently ranked 527th in the world.

Table 1. The founding dates of the first universities in Europe and some of them

Country Name	Date
Italy	Bologna University 1088
England	Oxford University 1096; Cambridge Trinity College 1546
France	University of Paris 1150
Austria	University of Vienna 1365
Germany	Marburg University 1527
Russia	Sankt-Petersburg University 1724; Moscow State University 1755

(Smith, 2001, s.201-206; Zhang 2010 and Wikipedia Liste der aeltesten Universitaeten)

In Table 1, considering the University of Bologna, the establishment of a university in Turkey was delayed by 850 years, until 1933.

Thorens (2006) exWulfplains the meanings of the university and academic studies as follows (Ren and Li 2013): The university is a higher education institution that combines education and research, particularly advanced research, with its primary mission being the pursuit of facts for their own sake. It also contributes to the dissemination of innovations for the welfare of humanity through research and education, without expecting any returns.

The validity claims of educational principles from each period must be examined and interpreted within their own cultural and historical contexts (Wulf, 1994) because culture is transmitted through education, and the individual becomes a member of that society or group, thereby forming communities.

The Formation of the Concept of "Universitas" in Europe and the Ideas of Autonomy and Freedom
The formalization of the powers and duties of new institutions in higher education begins with the famous "student privilege" (Authentica Habita) law, issued by Emperor Frederick Barbarossa in 1155, which provided protection to scholars traveling to new centers of learning (Ruegg, 2006, p.42 and Karran 2009).

Ertem and Aypay (2023) emphasize the importance of the scholarship of teaching and learning in their research, noting that this scholarship encompasses the three fundamental missions of higher education: teaching, research, and service, all of which are obligations.

Ren and Li (2013) consider academic freedom as a necessary freedom that enables members of the institution to fulfill their individual responsibilities in the best possible way. Yılmaz (2019) views universities as service institutions that must address society, stating that academic freedom is interchangeable with accountability.

When discussing autonomy and academic freedoms, an anecdote from Immanuel Kant's work "The Dispute of the Faculties" is particularly interesting: a French minister asks merchants for suggestions on how to assist trade. An elderly merchant, who had been silent at first, suggests improvements to the roads and granting the right to quick exchanges, and ultimately says, "Leave the rest to us." The autonomy that Kant envisioned for universities in the 18th century became part of the modern constitutional state with the civil rights movement of the 19th century (Schiedermair, 2007).

Himmelmann (2007) further divides democracy into two major areas: one is political democracy, as we understand it today as a system of governance, while the other is democracy as a social idea.

The Association of Differences in Countries' Governance Systems with University Management
In a university context, the transfer of decision-making powers from seminars and institutes to the faculty level or even further to the university administration level can be defined as centralization. In Mintzberg's terminology, such shifts are referred to as "vertical decentralization" or "centralization." Additionally, these concepts can also be expressed using the terms "horizontal decentralization" or "centralization" (Lazzari, 2018, p. 23 and Mintzberg, 1983, p. 323-324).

In general terms, horizontal decentralization should be understood as the process of creating and delegating subordinate units within a unit, along with assigning appropriate tasks and responsibilities to these units; this process begins with an increase in their decision-making authority. Conversely, vertical centralization can be understood as a reverse process. At the university administration level, it refers to the relationship between the rectorship (executive), coordination and planning committees, and the board of directors (legislative). At the level of "organizational units," it is defined as the relationship between management bodies (such as deanships, department heads, etc., in the sense of "executive") and councils representing all committees and member groups ("legislative") (Lazari, 2018).

"Centralization" refers to the process within an organization where planning and decision-making activities are concentrated in a specific leader or position. In contrast, "decentralization" enables a structure where teams or departments possess decision-making authority and encourages communication in all directions (Wale, 2015 to 2024 CFI Education Inc).

Decentralization is closely related to multi-level governance and federalism. However, the term 'federalism' refers to a specific vertical governance arrangement. Federalism is a self-governing and shared governance system, derived from the Latin word “foedus,” meaning "agreement" or "contract" (Decentralization & Localization, September 2024).

Formation of Universities
"The Apennine Peninsula, now Italy, is one of the main homelands of the university. Particularly in Bologna and other Italian cities, the teaching of Roman law and canon law continued with scholastic methods from the second half of the 11th century. Without any regulation or instruction, students in Bologna formed a corporation (universitas) throughout the 12th century according to their own wishes and needs. This spontaneously formed university (ex consuetudine / from custom, meaning 'due to tradition') was initially self-organized, self-governed, and financially autonomous. Professors were elected and appointed either by the university or by the students" (Zhang, 2010, p. 16-17).

In 1348, at the time of the founding of the University of Prague, the first university in the "Holy Roman Empire," there were 23 universities on the continent, nine of which were in Italy and eight in France. He notes universities such as Prague, Vienna, Heidelberg, Cologne, Erfurt, Leipzig, Rostock, Louvain, Greifswald, Freiburg, Basel, Trier, Ingolstadt, Mainz, Tübingen, Wittenberg, and Frankfurt (Oder). All of these were founded between 1348 and 1506. Bologna and Paris left a lasting mark on the process of university formation. The slogan was "a university for everyone." German universities emerged later than those in Italy, but as a result, they created new models. These institutions initially came under significant pressure toward centralization (Schwinges, 2008).

Zhang (2010) explains that during the Middle Ages, universities in Central Europe offered more privileges compared to other schools:

"At Erfurt, a university generally offered its members more than a school could. At the university, one could study not only fine arts but also civil law, theology, and medicine" (p. 151).

The shaping of European universities with the emancipatory movements of the 19th century, particularly the Humboldt principles, which influenced not only German and French universities but also American universities, provides an opportunity in this section to address some key views within the context of the research. Rüegg (2007) uses the following description to explain Humboldt's understanding of autonomy: *"Scientist and diplomat Wilhelm von Humboldt, at the beginning of March 1809, fulfilled the request of his king, who had been exiled to East Prussia by Napoleon, to reorganize the Prussian education system. This request also included the establishment of a 'general and higher education institution' in Berlin, which the king had ordered in 1807."* Humboldt received approval from the King "to give it the name of a traditional university and grant it the right to confer academic honors." The founding charter was granted on August 16, 1809, and the university opened in Michaelmas 1810... This move inspired new institutions, as seen in Zurich in 1833 and Bern in 1834, and by 1914, it had transformed the university system in Europe, North America, and Japan. After the Second World War, thanks to the model created by American universities, it spread across the entire World (p.1).

Özsoy and Balyer (2023), when discussing the Humboldt model, state that this structure is based on German idealism and views the production of knowledge and adherence to research requirements as the primary responsibilities of universities.

Schleiermacher and Humboldt derived the autonomy of the university from the fundamental difference between schools and universities: while the task of schools was to transmit predetermined, recognized, and applicable knowledge as endorsed by authority, the task of the university was "to demonstrate how knowledge is obtained by visualizing the principles and outlines of all knowledge." For Schleiermacher, the essence of study was already "the learning of learning," and university education was summarized in an act where "knowledge awakens in a person as a guiding principle, as the highest consciousness of reason." The professor "should not merely convey what they know, but reproduce their own cognition, the act itself, so that [the listeners] not only collect information..." (Rüegg, 2007, p.3).

Here, the term "SelbstActus" is used. (This is a concept understood in the context of "self-determination and self-realization," rooted in German idealist philosophy). According to Humboldt, the start of academic work occurs with independent doctoral research following bachelor's and master's studies. The position of associate professor (Dozent) corresponds to Habilitation, and Habilitation was introduced as an additional examination for teaching qualifications at some German universities between 1799 and 1804, and it was officially adopted in the Berlin University statutes in 1816 (Rüegg, 2007, p.4).

The phrase "Science and teaching are free" is used in the Constitution of St. Paul's Church dated 1849. In the history of universities in the 20th century, which experienced the brief time differences between two world wars, higher education institutions faced attacks from political dictators (Schiedermair, 2007).

In the United States, university autonomy is a result of professors' academic freedom. The locus of academic freedom is the professor, and autonomy is the reflection of this freedom within the university.

Autonomy is the academic freedom of the university as a community of scholars. In contrast, in Latin America, academic freedom is understood as a result of the university's institutional autonomy. The focus of autonomy is the university, and the freedom of faculty members stems from the liberties granted to the university (Bernasconi, 2021, p. 57). The freedom of research and teaching is also a freedom of service. The freedom of research and teaching is a status right aimed at securing the benefits of free and unrestrained science for the general public by guaranteeing it under individual law.

The article by Yıldız (2016) examines academic debates on centralism in the Turkish education system. It analyzes the central administration of the Turkish education system (TES) and the ongoing discussion about whether centralism is a suitable solution for its structural problems:

Historical Context: The model of the nation-state established after the French Revolution led to state control over education systems worldwide, aiming to cultivate loyal citizens. In Turkey, this model was particularly adopted in the early years of the Republic.

Problems of Centralization: Although the initial centralization was historically considered necessary, it is now regarded as one of the main causes of the current challenges in the Turkish education system.

Centralism as a Supposed Solution: At the same time, arguments in favor of decentralization include adaptation to international education standards, increased participation in decision-making processes, improved communication through multiple channels, more flexible resource allocation, and greater efficiency in examination outcomes.

Scientific Reflection and Epistemological Challenges: The article advocates for a nuanced discussion on decentralization that goes beyond simplistic contrasts such as "centralized = bad, decentralized = good."

Critical Assessment: The text critically examines the decentralization debate in the Turkish education system and cautions against uncritically viewing decentralization as a universal solution.

The article by Trakman (2008) focuses on the model of academic self-governance ("faculty governance") at universities. It is presented as a traditional governance model in which academic staff play a central role in decision-making processes, either through university senates or faculty representation in governing bodies.

Main points of the text:
Justification: Academic staff are best positioned to understand and implement the university's academic goals and mission.
Criticism: Common criticisms include a lack of governance skills, disinterest in administrative tasks, and difficulties in dealing with stakeholders outside academia.
Resilience of the Model: Despite criticism, faculty governance elements are often relied upon, especially when issues arise with alternative governance forms.
Philosophical Perspective: Faculty governance is associated with "academic democracy." One example is the Cambridge model, where the "Regent House" serves as the highest governing body.
Challenges: Faculty-dominated governance models are under pressure, particularly in bicameral systems where academic self-governance is separated from economic and strategic management.
Solutions: To address competency gaps, governance training for academic staff is increasingly being offered, for example, at Harvard Business School.
Relevance of the Model: Despite different governance approaches, academic participation remains a central component of university administration, particularly in areas such as relations with unions and student representatives.

Overall, the text explores the tension between academic self-governance and modern governance requirements, particularly in financial and administrative matters. Theoretical focal points from the text by Berggren and Bjørnskov (2021):

1. Definition and significance of academic freedom
   Academic freedom is the freedom of scholars and students to conduct research, teach, and disseminate knowledge without external influence.
2. Relationship between academic freedom and knowledge production
   Academic freedom contributes to the production and dissemination of new and useful knowledge, fostering innovation and economic development.
3. Innovation and economic growth
   In addition to science, entrepreneurs play a key role in utilizing innovative insights to enhance economic efficiency.
4. Three favorable conditions for the positive relationship between academic freedom and productivity growth
   (i) External actors (state, clergy, and economists) who do not restrict freedom and possess excellent management skills.
   (ii) Internal actors, particularly scholars, who produce useful knowledge.
   (iii) Entrepreneurs who economically exploit this knowledge.
5. Institutional complementarity between science and the economy
   - A strong legal infrastructure (e.g., protection of property rights) is crucial for the effective economic utilization of knowledge.
   - Academic freedom promotes productivity growth.
   - Endogenous growth theory (Romer).
6. Testable hypotheses
   a) Academic freedom contributes to productivity growth when useful knowledge is produced.
   b) A high-quality legal system protects property and contracts.

The key focus of Bleiklie's (2018) study describes two fundamental organizational and decision-making models of universities:

1. ***University as a "Republic of Scholars":***
   - Institutional autonomy and academic freedom are inseparable.
   - Decisions are based on collegial resolutions made by independent scholars.
   - Power primarily rests with the professors.

2. ***University as a "Business":***
   - Institutional autonomy serves strategic decision-making by leadership figures.
   - Scholars are just one of several interest groups.
   - Decisions follow a hierarchical logic, with power concentrated in leadership and stakeholders.

Particularly in private higher education systems, the business-oriented logic is reinforced, viewing universities as economic actors. New Public Management (NPM) calls for clear goals and strategic governance, whereas an alternative perspective sees universities as "special organizations" characterized by diffuse decision-making processes.

Bozkurt and Balcı (2020) examine in their article the perception of organizational democracy and academic freedom by Turkish academics, as well as their implementation at universities. They find that democratic elections are considered an essential element of participation within higher education institutions. The study shows that university democracy is inextricably linked to participation in administrative processes, a democratic institutional climate, freedom of expression, and academic self-governance. However, the criteria set by the OECD for the autonomy of Turkish universities are only partially implemented. Academics perceive Turkish Higher Education Law No. 2547 as a significant obstacle to university autonomy. For example, curriculum design requires approval by the Council of Higher Education (YÖK), universities have no decision-making authority regarding the number and selection of undergraduate students, and they are restricted in hiring or dismissing academic staff. The study identifies several key barriers to democracy and independence in Turkish higher education, including centralized bureaucracy, the lack of a democratic culture, the electoral system, legal restrictions (Law No. 2547), political pressure, arbitrary decisions, deficits in leadership competence, and inadequate procedures for academic appointments.

The Constitution of the Republic of Turkey of 1961 placed greater emphasis on the scientific and administrative autonomy of universities and granted faculty members extensive freedoms. In contrast, the 1982 Constitution led to increased state control, both in terms of administration and the academic orientation of higher education institutions. Academic freedom was relativized through comprehensive regulations on political activity, university governance, and state supervision (Güçlü 2020).

The following comparative analysis was conducted using Güçlü's (2020) study, which examines the impact of the constitution on Turkish universities, as well as the constitutional texts of 1961 and 1982.

Table 2. The constitutions of 1961 and 1982 have a decisive influence on higher education

	Constitution of 1961	**Constitution of 1982**
Scientific and administrative autonomy	Ensuring scientific and administrative autonomy	Significant restriction of autonomy
Foundation and organization of universities	Establishment by state law and administration, as well as oversight by a board of faculty members	Pursuit through strict state regulations, as well as administration and control by law
Freedom of science and protection of lecturers	Guaranteeing the status of faculty members as well as their right to research and publication	The subjugation of academic members to strict regulations
State control and supervision	Administration and supervision by authorized faculty committees, but without direct political control	Assumption of strict control of universities by the state
Appointment of university administrations	The administration of universities by university members	Appointment of rectors directly by the president; deans by the Higher Education Council (HEC)
Political influence	No specific regulation regarding the political activities of university members	Regulations on the membership of faculty members and students in political parties and their restrictions
Educational goal of universities	No specific definition of curricula and national objectives	Education at universities according to the needs of the country; protection of the independence and unity of the Turkish state

Method

The design of this research has been structured as a discussion of the data on autonomy and academic freedom in universities, interpreted through case studies and comparative qualitative and quantitative analyses, using a retrospective approach (Flick, 2000).

The perceptions of autonomy and freedom in the universities of England, Federal Germany, and Turkey have been examined from the perspective of "case studies." Unstandardized data (such as observations and documents) have been compared and classified according to a hermeneutic understanding. Therefore, this research falls within the scope of qualitative social research (Bacher and Horwath, 2011).

In qualitative research, the problem based on the perception of autonomy and freedom in this study has been formulated by placing it within a factual context as follows (Leitfaden für qualitativ-empirische Abschlussarbeiten):

Research Problem:
This study examines universities in countries with federal, centralized, and decentralized governance models (Germany – Brandenburg, England, and France) in relation to key aspects of academic governance, including:

a) organizational autonomy (statutes, executive leadership, governance bodies, structures, regulatory oversight)
b) financial autonomy (public funding allocation, financial management, tuition fees)
c) staffing autonomy (recruitment, salaries, careers & dismissal)
d) academic autonomy (student enrolment, degree programmes, external quality assurance),

Furthermore, the study explores the distinction between autonomy and academic freedom and evaluates the Turkish higher education system—characterized by a centralized structure—against these principles. Additionally, by analyzing universities within these governance models based on their performance in Nobel Prize achievements, the study investigates how different governance structures influence scientific publication success.

The establishment of universities and their gaining of autonomy have been utilized in quantitative and qualitative comparisons from articles and books taken from journals surveyed in historical research, with the support of UNESCO's "European University Association (UAE) University Autonomy in Europe October 2023 (for Germany), December 2023, April 2024" (for France, England, Turkey). With "World University Rankings 2023," the rankings of universities in these three countries were examined, and the data were analyzed hermeneutically.

Findings

Turkey
University Autonomy in Europe (UAE) research report on higher education in Turkey (EUA IV Country Profiles, April 1, 2024, pp. 89-96) provides detailed insights into Turkey's university system.

Table 3. Turkish universities

State universities	129
Foundation universities	79

Note: The percentages in Table 3 are taken from UAE IV Country Profiles (III) April 2024 (Higher education landscape) p.89
There are more public universities.

Table 4. Autonomy percentages

Organisational autonomy	%39
Academic autonomy	%46
Finnacial autonomy	%37
Staffing autonomy	%46

Not: Information UAE IV Country Profiles (III) April (Factsheets).It was taken from the 90s.These have been tabulated below to show their position in the group according to the years of participation and their ranking among the 35 countries.

Table 5. Autonomy dimension

Dimension	2010	2022	2022 cluster	Rank
Organisational autonomy	%39	%39	Düşük	35
Finnacial autonomy	%49	%37	Düşük	31
Staffing autonomy	%47	%47	Orta düşüklük	30
Academic autonomy	%46	%46	Orta düşüklük	29

Note: The information is taken from UAE IV Country Profiles (III) April 2024(Factsheet) p.90.

Due to legal changes related to higher education in Turkey and the practices of YÖK associated with them, autonomies are falling outside the scope of the 'UAE' methodology:

Appointment of Rectors: *"The first paragraph of the (a) clause of Article 13 of Law No. 2547, published in the official gazette on 09.08.2018, states, "The rector of state and foundation universities is appointed by the President." In universities established by foundations, the appointment of the rector is made upon the proposal of the board of trustees" (Şen, 2021).*

This practice is not found in other higher education systems analyzed by the Autonomy Scorecard. The European practice limits external authorities' intervention in this matter to the formal approval of the selection made internally by the university

The system governing the appointment of university rectors differs from what is considered aligned with the general principles of institutional autonomy of the European university community. Turkey's score should be analyzed based on this system when considering its position on the Autonomy Scorecard.

Governing Bodies: Turkish universities have a unified management model where decision-making powers are concentrated in the senate and the university management board. The Senate is presided over by the rectors (with a vice-rector participating as an observer). The Senate consists of rectors, deans, heads of other academic units, and faculty senate representatives.

Structural Units: The establishment of faculties or other academic structural units requires the approval of YÖK.

Financial Autonomy: The university budget is allocated annually in items by the Ministry of Finance.

Tuition Fees
The tuition fees, which are considered as contribution fees, are determined annually by the Council of Ministers

Personnel Autonomy

Recruitment: The recruitment processes for academic staff classified as civil servants, including the determination of open positions for academic roles, are centrally conducted by the government and the "Council of Higher Education" (YÖK)

Salaries: In state universities, the salaries of academic and administrative staff are determined by the government each fiscal year and, if necessary, twice a year due to inflation. Foundation universities also comply with this.

Career: The conditions for obtaining academic titles are determined by higher education law. Vacant position announcements are published in the official gazette after YÖK approval, and anyone who meets the qualifications for that position can apply. The dismissal of all academic staff who hold civil servant status has also been strictly regulated by law.

Academic Freedom

Student Enrollment
YÖK determines the admission requirements and numbers for undergraduate students at all universities. In their graduate studies, universities determine their numbers based on the number of their academic staff.

- In the Turkish higher education system, autonomy and academic freedom fall outside the European system, making it impossible to compare in terms of similarities with other countries.
- There are no Turkish universities in the top 300 of the UAE ranking for the 2022-2023 period. Additionally, since the establishment of Turkish universities in 1933, there has been no Nobel Prize in the field of science awarded to academics within the Turkish university system

Country Profiles in the UAE
UAE profiles have been developed based on data collected from the Autonomy Scorecard (from national rector conferences and university associations): These include surveys, follow-up discussions, and interview reports. In this profile, the comparison of higher education systems in 35 countries is explained quantitatively and qualitatively in the following four dimensions in University Autonomy in Europe IV Country Profiles (I) p.4:

1. Autonomy of the higher education organization, 2. Financial autonomy, 3. Academic freedom, 4. Autonomy in personnel recruitment.

In four key dimensions of autonomy

Organisational autonomy
covering academic and administrative structures, leadership and governance
Staffing autonomy
including the ability to recruit independently, promote and develop academic and non academic staf

Financial autonomy
covering the ability to raise funds, own buildings, borrow money and set tuition fees
Academic autonomy
including study fields, student numbers, student selection as well as the structure and content of degrees

This diagram is taken from UAE October 2023 p.4.

Comparisons of Autonomy and Academic Freedom in the Universities of the Countries within the Scope of the Research
Here, the universities of the three countries mentioned in the problem statement (the United Kingdom, the German state of Brandenburg, and France) are compared both quantitatively and qualitatively in terms of autonomy and freedom, along with their rankings in global university lists and the number of Nobel prizes awarded. (The data were obtained from "Quantitative and qualitative data were obtained from UAE IV in April 2024 and UAE (I) in October 2023, and the following comparisons have been made"):

Table 7. Autonomy rates of the 3 countries selected as a sample

Country	Organisational autonomy	Academic autonomy	Finnacial autonomy	Staffing autonomy
England	%100	%89	%89	%96
Germany Brandenburg State	%58	%87	%44	%58
France	%57	%42	%44	44

Note: The percentages in Table 6 were taken from UAE IV Country Profiles (III) April 2024 p.36 for France, p.29 for the UK, and from UAE Country Profiles (I) October 2023 p.28 for Germany's Brandenburg state.

In Table 7, universities in the UK, operating under a decentralized system, are ahead in terms of autonomy and freedom compared to the other two countries.

Table 8. Cluster and rank according to the autonomy rates of 3 countries in the UAE

Country	Autonomy dimension	2010	2017	2022	2022 Cluster	Rank
England	Organisational autonomy	%100	%100	%100	High	1.
Brandenburg		%58	%58	%58	Medium low	23
France		%57	%57	%57	Medium low	24.
England	Financial autonomy	%89	%89	%89	High	2.
Brandenburg		%44	%44	%44	Medium low	27
France		%47	%44	%44	Medium low	27.
England	Staffing autonomy	%96	%96	%96	High	4.
Brandenburg		%58	%58	%58	Medium low	24
France		%43	%43	%44	Medium low	31
England	Academic autonomy	%83	%89	%89	High	3.
Brandenburg		%67	%87	%87	High	9
France		%37	%38	%42	Medium low	32.

Note: The percentages in Table 8 were taken from UAE IV Country Profiles (III) April p.36 for France, p.29 for the UK, and from UAE Country Profiles (I) October 2023 p.29 for Germany's Brandenburg state.
In Table 8, England ranks at the top in autonomy and freedoms among the 35 higher education institutions listed in the UAE Country Profiles.

Qualitative Comparisons of the Three Countries

(from University Autonomy in Europe IV Country Profiles (I) October 2023 and (III) Apri 2024

Table 9. The tabular analysis of organizational autonomy in Germany, England, and France

Aspect	Germany (Federal System)	England (Decentralized System)	France (Centralized System)
Statutes	Universities approve their own statutes; no external validation required.	Universities can freely change statutes but must report significant changes to the regulator; post-1992 institutions need Privy Council approval.	Changes to university statutes must be submitted to the ministry, including for experimental institutions (EPE).
Executive Leadership	The university senate elects the rector; ministry validates the result. Selection criteria and a six-year term are legally defined. Dismissal requires a two-thirds	Governing bodies appoint executive heads without external validation. No legal selection criteria. Universities	The president is elected by the board, without external validation. Selection criteria include holding an academic position and an age limit (under 68). The ministry can

	senate majority and external confirmation.	set terms and dismissal procedures independently.	suspend the president under specific conditions.
Governance Bodies	Senate-based unitary governance. Senate size and composition vary, but external members are not included.	Dual governance: board/council handles strategic decisions, senate manages academic governance. External members are included in governance bodies.	Board governs the university (strategy, budget, staffing). Academic council (with two committees) oversees research and teaching. External members are part of governance bodies.
Structures	Universities can freely define academic structures and create for-profit/non-profit legal entities.	Universities freely decide on structures and can create for-profit/non-profit legal entities.	Universities have legally regulated structures (faculties, schools, mixed research units). The university board can create additional structures.
Regulatory Oversight	Autonomy in governance, but within state laws and ministry validation.	Compliance with the Higher Education Code of Governance is expected; regulator (OfS) monitors governance.	Strong state control via the Education Code and ministry oversight.

The organizational autonomies of universities in the UK and Germany are similar to each other. In the UK, the university president is appointed by the governing bodies. In Brandenburg State, Germany, the senates elect the president in newly established universities and the rector in traditional universities. In France, the rector is elected by an absolute majority of the members of the management board

Table 10. A tabular overview of the financial autonomy of universities in Germany (Brandenburg), England, and France

Aspect	Germany (Brandenburg)	England	France
Public Funding Allocation	Two-year budget cycle with no internal allocation restrictions.	Annual block grant with no internal allocation restrictions.	Annual block grant divided into categories (investments, salaries, operational costs); some earmarked funds cannot be reallocated.
Financial Management	- Universities may retain surpluses from public funds, but allocation is predetermined by public authorities. - Borrowing only allowed from a state-owned bank and within a limited amount. - Universities manage real estate but do not own buildings (except foundation universities).	- Universities may retain surpluses from public funds without restrictions. - Borrowing is allowed with external approval. - Universities can own and sell buildings without restrictions.	- Universities may retain surpluses without restrictions. - Borrowing is highly restricted (only short-term loans or from the European Investment Bank for specific real estate projects). - Universities may own real estate, but ownership is rare; selling property is restricted to specific institutions.
Tuition Fees	No tuition fees for national, EU, or international students.	- Bachelor's degrees: Tuition fees for national students capped (£9,250 in 2023). - Master's & doctoral degrees: No government-imposed limits. - International/EU students: No fee cap.	- Tuition fees set by public authorities at all degree levels. - Higher fees introduced for non-EU students in 2019. - Universities may waive fees for up to 10% of enrolled students. - Special fees for non-state-recognized university diplomas.

In England, there are no restrictions, and they can even borrow money (similar to a corporate structure). In Brandenburg, there are no restrictions on the internal use of the received funds.

Table 11. Here is a tabular comparison of staffing autonomy in Germany (Brandenburg), England, and France

Aspect	Germany (Brandenburg)	England	France
Recruitment	- Universities recruit senior staff autonomously. - Senior staff hold civil servant status, with different rules for those hired before/after 2002.	- Universities freely recruit senior academic and administrative staff.	- Majority of senior staff are civil servants. - Public authorities regulate the number of senior academic posts and confirm professor appointments. - The 2020 research law introduced junior professorships and eased recruitment requirements.
Salaries	- Staff salaries are decided by Land authorities and vary across Germany. - Academic staff salaries have an overall limit. - Salary bands for senior administrative staff are negotiated between unions and Land authorities.	- Universities follow a nationally agreed pay scale but apply their own pay policies. - Senior staff salaries are determined by the university's governing body.	- Salaries consist of a fixed part (seniority-based) and a variable part (defined by institutions within ministry-set limits). - Junior professor salaries are set by the ministry. - Contractual staff salaries are institution-set but usually follow civil servant scales.
Careers & Dismissal	- Staff dismissal is strictly regulated due to civil servant status. - Dismissal is limited to cases of gross misconduct. - Promotions depend on the availability of higher-level posts.	- No sector-specific dismissal regulations; national labor laws apply. - Universities freely decide on promotions.	- Promotions for civil servants are subject to state-imposed quotas. - 50% of senior academic promotions are decided nationally, 50% by institutions. - Junior professors gain civil servant status upon positive assessment. - Senior administrative staff promotions are usually decided externally. - Dismissal is strictly regulated due to civil servant status.

In England, academic and administrative staff are in the same category and are hired freely. In Brandenburg, universities are also independent. In France, the majority of senior staff are civil servants, and staffing is regulated by public authorities

Table 12. Here is a tabular comparison of academic autonomy in Germany (Brandenburg), England, and France

Aspect	Germany (Brandenburg)	England	France
Student enrolment	- Universities negotiate student numbers with an external authority. - Admission process co-regulated by external authorities and universities. - Universities decide admission for master's programmes autonomously.	- Universities autonomously set student numbers and admission criteria. - Student number caps lifted in 2015, but debates continue.	- Free admission remains a key feature. - Since 2017, universities can set criteria and rank applicants. - Bachelor's graduates have the right to continue to a master's degree.
Degree programmes	- New bachelor's and master's programmes require accreditation unless self-accreditation is permitted. - Doctoral programmes can be opened without prior accreditation. - Introducing or terminating programmes requires negotiation with external authorities. - Universities can introduce short-cycle programmes for lifelong learning.	- Universities can introduce and terminate programmes at all levels without prior accreditation. - Full autonomy in choosing the language of instruction.	- Universities are accredited for five years with a fixed list of recognised programmes. - Universities can open their own degree programmes at any time. - Termination of programmes is autonomous. - Language of instruction is restricted for bachelor's programmes but flexible for master's.
External quality assurance	- Universities choose between programme accreditation, system accreditation, or alternative procedures. - System accreditation allows full internal quality assurance.	- Universities undergo institutional quality assurance by the Office for Students (OfS). - Universities autonomously	- Institutional evaluation every five years replaces programme-level accreditation. - The High Council for the Evaluation of Research and Higher Education

	- Universities can choose foreign accreditation agencies. - Free choice of language of instruction.	determine their own quality assurance methods. - Focus is on student outcomes and programme relevance.	(Hcéres) oversees quality assurance. - Evaluations cover institutions, research units, and study programmes.

It is observed that English universities are ahead of other countries in terms of academic autonomy.

The Effects of Autonomy on Academic Achievements According to Times Higher Education and World University Data

Among the top 130 universities in the World University Rankings, there are 10 British universities, which have received a total of 136 Nobel prizes (timeshighereducation, 2023):

Federal Germany

Among the top 130 universities in the World University Rankings, there are 12 German universities and a total of 315 Nobel prizes.

https://www..com/world-university-rankings/2023/world-ranking?page=1#:

Brandenburg universities are ranked between 201-250 among world universities.

France

Among the top 130 universities in the world rankings, there are 5 French universities and the number of Nobel laureates is 76.

According to these three observations, the impact of the autonomy of English universities on the scientific world is significant.

Discussion and Comments

This section focuses on the discussion and comments regarding the higher education system in Turkey. It has been interpreted based on the data presented in the conceptual framework of the other three countries

Under the heading 'Views from the sector,' it is stated that 'According to the CoHE (Council of Higher Education), Turkey's higher education system is entering a transitional period after a significant transformation stage, with nearly half of the existing universities established in the last twenty years. This transition period brings both positive and negative outcomes for Turkey's higher education system...' (University Autonomy in Europa IV, April 2024, p. 96)

The political movements that negatively affected Turkish universities include the March 12 Memorandum of 1971, the rise of political Islam, and the subsequent military intervention of September 12, 1980 (Başbuğu, 2020, pp. 157, 165, 289, 433, 437; Peköz 2009 p.129; Zürcher, 2004, pp. 373, 380, 401-408). The negative impacts on the universities' organizational autonomy and academic freedoms can be summarized as follows:

- The use of freedoms for faculty members and organizational autonomy by the highest political organizations (Presidency, Council of Higher Education).
- The transformation of higher education into vocational training aimed at obtaining a profession or even a diploma.
- While Turkey's population is 85,372,377 and the number of academic staff is 184,021, the number of students in universities is 6,950,142, meaning that 12% of the population prefers or is directed to pursue more than eight semesters of education, thus showing those unemployed from the working population as higher education students.

Basic issues

- The lack of accredited private institutions that would evaluate universities in all aspects to inform the public (Ültanır, 2016, p. 46-55).
- Over the last 45 years, due to the increasing influence of the political structure in universities, academics have experienced uncertainty in their academic attitudes, and academic research has been conducted solely for the purpose of title promotion rather than for advancements in the sciences.
- Instead of testing the SelbstActus ability, which should be present in independent researchers, through examinations conducted by universities, research assistants, master's, and doctoral students are selected through a centralized examination system and the inclusion of certain success scores in the selection process.
- The loss of the pyramid structure in academic status :According to YÖK data, in the 2022-2023 academic year in Turkey, 19% of faculty members are professors, 12% are associate professors, 24% are doctoral faculty members, and 25% are research assistants. The remaining 20% belong to teaching staff. There is only a 1% difference between research assistants and doctoral faculty members.

Proposals for Changes to Ensure Autonomy in the Structure of Turkish Universities

- Based on the dominant examples of England and Germany, and since Turkey's administrative structure is of a centralized type, organizational autonomy and academic autonomy should be ensured compared to France.
- Universities should be modernized in accordance with a "secular foundation" that will create the image of a contemporary person, produce science, provide technology that will compete with foreign countries in the business world, and nurture "geniuses" who will create reform within the social structure.
- The Council of Higher Education (YÖK) should be abolished, and autonomy and freedoms should be transferred to universities.
- State universities with academically insufficient (unsuccessful) academic staff should be separated, leaving only a number of universities appropriate to the number of provinces. Those not included in this number should be transferred to the Ministry of National Education and converted into two- or three-year vocational colleges.
- Rectors should be elected by the senate from among the successful professors at the university for a term of 5 years. The same rector should serve for another 5 years if the Senate deems it necessary.
- The rector's role is to ensure coordination among university units and establish integrity, and to present the structures necessary for financial autonomy of the university to the senate, revitalizing those structures based on the outcome obtained. The rector cannot intervene in academic activities and positions.
- According to the academic promotion criteria of universities ranked in the top 100-200 in the world university rankings, the academic promotion criteria in Turkey need to be regulated

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