

▪ **Basic Research****Leveraging Electronic Rubrics in Nursing Education: A Pathway to Academic Flexibility and Justice**

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Abstract

Background: The educational process within the nursing students' classroom is open to systematic evaluation. Electronic rubrics serve as effective tools for objectively measuring how well learners meet predetermined goals. Utilizing these digital instruments is essential for promoting fairness and adaptability in academic assessment.

Aim: To investigate the role of electronic rubrics on academic flexibility and justice among nursing students. **Design:** A cross-sectional research design was conducted for this study.

Setting: The study was conducted in Faculty of Nursing, Benha University located in Qalubia Governate, Egypt. **Sample:** This study carried out on 524 nursing students from the four academic levels. **Tools:** The following three scales were utilized: the Electronic Rubric Usability Scale, The Nursing Students' Academic Flexibility Scale, and the Nursing Students' Academic Justice Scale. **Results:** Reveals high average items score of the participants' nursing students regarding electronic rubric usability, academic flexibility, and academic justice (4.15 ± 1.05 , 3.79 ± 1.44 , 3.81 ± 1.34) respectively. And the highest percentage of them had high level of electronic rubric usability, academic flexibility, and academic justice (47.5%, 40%, 42%) respectively. There was a statistically significant positive correlation between participants' electronic rubric usability and academic justice and between electronic rubric usability and academic flexibility. Also, there was a statistically significant positive correlation between academic justice and academic flexibility. **Conclusion:** Nursing students reported a significant correlation between electronic rubric usability and academic flexibility and justice. **Recommendation:** All faculty members should be given access to a uniform set of guidelines for the creation and use of electronic rubrics. Further study is needed to investigate the impact of electronic rubrics on student motivation, engagement, and long-term learning outcomes

Keywords: Academic flexibility and justice, electronic rubrics and Nursing student.

Introduction:

Globalization has accelerated the integration of technology in education, particularly in the realm of electronic rubrics (e-rubrics). These digital assessment tools have become globally recognized, playing a crucial role in shaping teaching and learning. Online platforms: the advent of online rubric platforms has the potential to significantly enhance the effectiveness of rubrics in educational contexts, offering innovative features for assessment and feedback through the creation of e-rubrics and offering flexible learning and justice in grading and other decisions made in the academic environment **(Franco-Mariscal et al., 2023)**.

E-rubrics, digital platforms for grading student performance, offer flexibility, transparency, and speed compared to traditional paper-based rubrics. They reduce subjectivity, promote equitable learning opportunities, and promote academic justice in nursing education. **(Deschênes, et al., 2025)**. A traditional rubric is a paper-based assessment tool with evaluative criteria and quality levels, It is typically paper-based (or non-interactive digital copy of the paper version), without built-in interactive, automated, or adaptive features guiding consistent scoring, communicating expectations, and providing feedback based on fixed performance levels **(Berkeley, 2025)**.

An e-rubric is a clear set of standards used to evaluate certain types of work or performance; it offers more information than a single grade or mark. The term "a coherent set of criteria for students' work that includes descriptions of levels of performance quality on the criteria" is commonly used as well. Rubrics have three features: assessment criteria, a grading strategy, and standards/quality definitions **(Garcia-Ros et al., 2024)**. It includes insights into a student's strengths and weaknesses, thereby integrating summative decisions with formative feedback **(Schumann & Baraka, 2024)**.

Feedback is a cornerstone in clinical education. Efficient learning is enhanced by effective feedback. It offers insightful responses to four basic queries: where students are now, where they are headed, and how they plan to get there **(Makule & Kibusi, 2020; Karaman, 2024)**. Educators often use simple assessments without appropriate instruments due to a lack of appropriate assessment instruments. Additionally, new curriculum implementation can cause educators to adjust to simpler assessments **(Saputra, 2023)**. Nursing faculty teachers can use professional learning rubrics to make sure that all necessary content is covered in educational programs. They can also be used to assess students' proficiency at the conclusion of an educational program **(Amin et al., 2023)**.

Evaluation rubrics are tools that go beyond checklists and rating scales, articulating expectations for student work by listing criteria and describing performance levels. They can be designed for training and rating purposes using a table or matrix format, with a scoring strategy that incorporates three essential elements: assessment criteria, descriptions of quality/performance levels for each criterion and the corresponding levels to be attained ranging from "inadequate" to "advanced," and a scoring strategy providing a pass/fail criterion and a total score **(Andrade, 2023; Garcia-Ros, et al., 2024)**. E. Rubrics are crucial for modern educational assessment, offering structured evaluation criteria could potentially introduce biases and may encounter technological difficulties like erratic internet access, in addition to a lack of awareness among stakeholders. These difficulties can be lessened with focused training and infrastructure upgrades, resulting in a more uniform, equitable, and efficient application of rubrics in learning environments **(Hopfenbeck et al., 2023 Ling, 2025)**.

According to **Otaki et al. (2023)**, to ensure that students are sufficiently involved, five features are necessary in the rubric: (1) congruence (i.e., the instructional content must be reflected in the rubric's tasks), (2) authenticity (i.e., the rubric's tasks should relate to the backgrounds and study contexts of the students), (3) consultation (i.e., students should be able to choose how and on what criteria their answers are evaluated), (4) transparency (i.e., there should be no "mystery items"; the items' wording must clearly address the targeted content), and (5) accommodation (i.e., every student should have an equal opportunity to complete the rubric's tasks).

Studies on undergraduate health sciences students show rubrics' effectiveness in evaluating competencies, fostering interpersonal communication, improving scoring consistency, and enhancing learning outcomes by combining theoretical and practical training (**Almalkawi et al., 2021**). According to **Schumann & Baraka (2024)**, using the rubric as a formative assessment tool has the advantage of shifting the focus from merely understanding students' thought processes to a more proactive stance on how we can best support students to navigate and refine their cognitive and emotional landscapes, which emphasizes their usefulness for both formative and summative purposes and enhances learning flexibility.

The technological advancement of information and communication has brought about major changes in higher education in recent years. However, the COVID-19 pandemic has further accelerated these changes, introducing greater flexibility in teacher education for both prospective and in-service teachers, highlighting the need for adaptability and flexibility (**Jacobs & Meyers, 2024**). To understand the role of flexible learning in higher education, we must examine it beyond mode, pace, and place. Advancements in technology have prompted institutions to focus on temporal and spatial aspects of flexibility. Flexibility should be applied to learning activities, assessments, communication methods, and educational resources, enhancing student learning and providing a personalized experience (**Barua & Lockee, 2024**).

Academic flexibility is the approach that offers flexibility in time, pace, place, content, learning style, assessment forms, and learning path. It goes beyond technology and includes a pedagogical approach that allows flexibility of time, place, and audience. The core concepts of flexible learning include easy access, accessibility, and learner empowerment. Two major types of flexibility are logistical and pedagogical. Logistical flexibility involves tangible aspects like 24/7 availability and cost reduction. Pedagogical flexibility focuses on communication, customizable learning environments, adaptability to learning preferences, content choice, and assessment formats (**Barua & Lockee, 2024; Martin & Furiv, 2024**).

Students' perceptions of e-rubrics, including their advantages, drawbacks, and challenges, significantly influence their readiness to integrate technology and adapt learning and evaluation methods. Heavy workloads and increased assignments can cause emotional distress, while flexibility in online learning and evaluation can lead to increased satisfaction, diverse student needs, and self-regulated effort and give them a sense of academic justice (**Nalaka et al., 2023; Piramanayagam et al., 2024**).

Academic justice ensures equal opportunities for students, promoting fairness and impartiality in teacher treatment, particularly in diverse classes. It fosters civic behaviors and improves students' performance by fostering a sense of worth. Academic justice ensures fairness and equality in education by providing equal opportunities, respecting diversity, maintaining integrity in evaluation, and applying transparent policies to foster a supportive

learning environment. **(Malakian et al., 2021)**. Academic grading and decision-making are crucial for justice and legitimacy, with educators and students increasingly valuing fairness. Universities worldwide are embracing procedural fairness, emphasizing elements like voice, neutrality, and understanding **(Główczewski & Burdziej, 2023)**.

Justice in medical education assessments is crucial for future healthcare professionals, minimizing biases like cultural and language, and ensuring student demographics are not influenced by performance. High-stakes assessments require reliable, valid test scores, but fairness is crucial. Bias in testing occurs when exams demand knowledge outside the intended assessment, reducing accuracy for certain groups. The Standards for Educational and Psychological Testing emphasize fairness and inclusivity in test design, minimizing construct-irrelevant barriers, and promoting a transparent, thorough test development process **(Malakian et al., 2021; Główczewski & Burdziej, 2023; Tavakol et al., 2024)**.

Academic justice is a crucial aspect of student learning and performance. It involves three types: distributive, procedural, and interactional. Distributive justice refers to students receiving grades based on their peers' standards, while procedural justice focuses on fairness in the procedures used by teachers to give grades. Interactional justice refers to the fairness in interpersonal relationships between students and teachers. Interactional justice is influenced by the way students are treated by instructors and understand their feelings, concerns, and needs. Overall, classroom justice is essential for students' academic success and overall well-being **(Aly, 2022)**.

According to **Titus & Menon (2024)**, academic justice in higher education faces many challenges due to political interventions, technological advancements, and societal expectations. Legislative actions in some states have eliminated courses focusing on race and gender, threatening academic freedom and marginalizing essential disciplines. The rise of artificial intelligence introduces new ethical dilemmas but also poses risks to academic integrity. The reliance on punitive approaches raises concerns about fairness and equity. Furthermore, the overarching aim of this study is to investigate the predictive role of electronic rubrics on academic flexibility and justice among nursing students.

The Significance of Study

The 21st century has seen significant changes in higher education due to advancements in information and communication technology **(Jacobs & Meyers, 2024)**. Educational assessment is greatly influenced by rubrics, which offer precise standards for instruction and learning. Online rubrics, which offer new capabilities for assessment and feedback through the development of e-rubrics, have the potential to greatly increase the efficacy of rubrics in educational environments. Rubrics have gained international recognition and traction, particularly in the past few decades. Due to their potential to provide better summative and formative outcomes, rubrics are generally well-liked by both educators and students **(Panadero et al., 2024)**.

The developments in the field of information and communication technology, Flexibility in terms of modes often leads to other forms of flexibility and new ways of doing **(Jacobs, & Meyers, 2024)**. To gain a comprehensive understanding of the role flexible learning plays in higher education, we need to investigate flexibility through a broader lens. Flexible learning can help students develop vital skills and the ability to use digital technologies for a range of purposes **(Manaligod, 2023)**. Academic justice ensures equal opportunities for students, promoting fairness and impartiality in teacher treatment, particularly in diverse classes. It fosters civic behaviors and improves students' performance by fostering a sense of worth

(Malakian, et al., 2021). It is a crucial aspect of student learning and performance (Aly, 2022).

Moreover, this study is important for the Faculty of Nursing – Benha University as it promotes academic justice by ensuring fair and transparent assessment. Electronic rubrics provide students with clear grading criteria, helping them understand their strengths and weaknesses. They also encourage self-directed learning through structured and timely feedback. In addition, electronic rubrics support flexibility in evaluating both theoretical and clinical courses. Finally, adopting such tools aligns the faculty with international standards in nursing education and strengthens its commitment to quality assurance. So that this study was carried out to investigate the role of electronic rubrics on academic flexibility and justice among nursing students at faculty of nursing, Benha University.

Subjects and Method:

Aim of the study:

The overarching aim of this study is to investigate the role of electronic rubrics on academic flexibility and justice among nursing students.

Research question:

What is the relation between electronic rubric usability, academic flexibility, and justice among nursing students?

Research Design

Cross-sectional research design was used to achieve the aim of the present study.

Study Setting

The current study was conducted in all academic departments at Faculty of Nursing Benha University, which was established in 1992 and accredited on 25/8/2014 by the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) and reaccredited on 27/10/2021. It was composed of four floors, and six academic departments were included: the Medical-Surgical Nursing Department, the Community Health Nursing Department, the Obstetric and Gynecological Nursing Department, the Pediatric Nursing Department, the Nursing Administration Department, and the Psychiatric Nursing and Mental Health Department.

Sample

A stratified random sampling technique was employed to ensure that students from all four academic levels were proportionally represented in the study. The total population consisted of 3,741 nursing students enrolled during the academic year 2024–2025. To determine the appropriate sample size, a standard sample size calculation formula was applied, which yielded a required sample of 524 students. The population was first divided into four strata, each representing one academic level (first through fourth year). From each stratum, participants were randomly selected in proportion to the number of students enrolled at that level, thereby maintaining representativeness. An equal number of students (131) were drawn from each academic level, as follows: First year: 131 students randomly selected out of 581; Second year: 131 students randomly selected out of 1,060; Third year: 131 students randomly selected out of 1,096; Fourth year: 131 students randomly selected out of 1,004. This method minimized sampling bias and ensured that the perspectives of students across all levels were equally reflected in the study.

Inclusion Criteria: Participants were eligible for inclusion if they met the following criteria: Enrolled as undergraduate nursing students in the Faculty of Nursing during the academic

year 2024–2025, registered in any of the four academic levels (first to fourth year). Exposed to or actively using electronic rubrics as part of their coursework or assessment process. Willing to voluntarily participate in the study and provide informed consent. Able to read and understand the rubric instructions and survey questions.

Tools of Data Collection:

The following three tools were utilized to collect the needed data for the present study:

First tool: Electronic Rubric Usability Scale: - it consisted of two main parts:

Part (1):- Demographic and academic characteristics of nursing students: it consisted of six questions about demographic and academic characteristics of nursing students as following: age, Gender, Residence, marital status, Previous Grade.

Part (2):- Electronic Rubric Usability Scale: The self-administered scale was developed by **Ana et al. (2020)** to assess the student perception about electronic rubric usability. It contained 27 items. It divided into 4 subscales: Usefulness (8 items), Ease of Use (9 items), Ease of Learning (3 items), and Satisfaction (7 items).

Scoring System :- Studied nursing students' responses were scored based on a five-point Likert scale ranging from 1 to 5 (1 for strongly disagree to 5 for strongly agree). The score of the items was summed up, and the total was divided by the number of the items, giving a mean score. These scores were converted into a percent score for nursing students' readiness toward using metaverse mixed reality technology **Ana et al. (2020)**.

Scoring was calculated as follows: <33.3% (average items score < 1.66) for low level of electronic rubric usability; 33.3% - 66.6% (from 1.66 to 3.33) for moderate level of electronic rubric usability; and > 66.6% (>3.33) for high level of electronic rubric usability .

Second tool : Nursing students' academic Flexibility scale: A self-administered scale was developed by **Cassidy, (2016)**, to assess academic flexibility and resilience among nursing students. It consisted of 30 items.

Scoring System : Studied nursing students' responses were scored based on a five-point Likert scale ranging from 1 to 5 (1 for strongly disagree to 5 for strongly agree). The score of the items was summed up, and the total was divided by the number of the items, giving a mean score. These scores were converted into a percent score for nursing students' creativity in learning **Cassidy (2016)**.

Scoring was calculated as follows: <33.3% (average items score < 1.66) for low level of academic flexibility; 33.3% - 66.6% (from 1.66 to 3.33) for moderate level of academic flexibility; and > 66.6% (>3.33) for high level of academic flexibility.

Third tool: Nursing students' academic justice Scale: A self-administered scale was developed by **Gad El Rab. & ElKheder (2016)** to assess academic justice perception levels among nursing students. It consisted of 24 items with 4 main dimensions distributed as follows: distributive justice, 5 items; procedural justice, 7 items; interpersonal justice, 7 items; and informational justice, 5 items.

Scoring System : Nursing students' responses were scored based on a five-point Likert scale from 1 for strongly disagree to 5 for strongly agree. According to **Gad El Rab. & ElKheder (2016)**, the exploratory factor analysis for the nursing students' Academic Justice Scale were CFI = .920, TLI = .900, and RMSEA = .670.

Scoring was calculated as follows: <33.3% (average items score < 1.66) for low level of academic justice; 33.3% - 66.6% (from 1.66 to 3.33) for moderate level of academic justice; and > 66.6% (>3.33) for high level of academic justice.

Data Collection Methods

1. The study was carried out through the period from January 2025 to the end of April 2025, covering four months and including the following: reviewing the national and international related literature using journals, magazines, periodicals, textbooks, internet and theoretical knowledge of the various aspects concerning the topic of the study.
2. The three tools contents were developed, translated into Arabic and tested for its content validity by 3 juries, who were experts in the related field. Based on their recommendations the necessary modifications were made. Also, the reliability of the tools was conducted to determine the internal consistency and homogeneity of the used tools by Cronbach's Alpha test. The internal consistency of Electronic rubric usability scale was 0.913, the reliability of nursing students' academic justice scale was 0.865 and nursing students' academic flexibility scale was 0.90.
3. Before embarking on the study, An official permission was issued from the vice dean for learning and student affairs to heads of academic departments at the Faculty of Nursing Benha University, to conduct the study and seek their support for completing the data collection.
4. A pilot study was carried out to ascertain the clarity and applicability of the study tools, representing 10% of total study subjects. Time needed to fill out the questionnaires determined to be between 20-25 minutes. The pilot study included in the study's main subjects. The researchers prepared the questionnaire electronically via Google Forms design and took permission from heads of academic departments after explaining the aim and the nature of the study and the method of filling out the electronic questionnaires to the nursing students in their departments, and then the link was sent to nursing students through the practical WhatsApp groups via heads of different academic departments. Data was collected daily, and the average number of responses per day ranged between 18 and 19 responses from nursing students.
5. Ethical Considerations: Prior to the conduction of the study, ethical approval was obtained from the Scientific Research Ethics Committee at the Faculty of Nursing, Benha university. All subjects were informed that participation in the study was voluntary, and informal consent was obtained from the participants in the study through their acceptance of filling out the questionnaire. Confidentiality of data obtained was protected by the allocation of a code number to the questionnaire sheets. Subjects were informed that the content of the study tools would be used for the research purpose only. Participants' right to withdraw from the study at any time was ascertained.

Statistical Design:

Data were collected, tabulated, and statistically analyzed by using an IBM personal computer with statistical package of social science (SPSS) version 26, where the following statistics were applied. Descriptive statistics: In which quantitative data were presented in the form of mean, standard deviation (SD), frequency, and percentage distribution. Correlation (r): It was used to study the association between two qualitative variables. Pearson correlation was utilized to assess the relation between study variables. A linear regression analysis test was used to determine the effect of electronic rubric usability on academic justice and academic flexibility among participants' students. The used tests of significance included the p-value test: statistical significance was considered at p-value 0.05, considered highly statistically significant at p-value 0.001, and considered not significant at $p > 0.05$.

Results

Table (1): Demonstrates that a total of 524 questionnaires were distributed to students, completed, and returned. The mean score of the participants' students was 22.12 ± 2.02 ; 65.3% of the participants were male, 55.9% were from urban areas, 95.9% were single, and 26.3% had very good grades in the previous grade with GPA range (3.3 – 3.6).

Table (2) and Figure (1): Shows high average items score of the participants' students regarding electronic rubric usability, academic flexibility, and academic justice (4.15 ± 1.05 , 3.79 ± 1.44 , 3.81 ± 1.34) respectively. And the highest percentage of them had high level of electronic rubric usability, academic flexibility, and academic justice (47.5%, 40%, 42%) respectively.

Table (3) and Figure (2): There was a statistically significant positive correlation between participants' electronic rubric usability and academic justice at ($r = .518^{**}$, $P < 0.001$) and between electronic rubric usability and academic flexibility at ($r = .747^{**}$, $P < 0.001$). Also, there was a statistically significant positive correlation between academic justice and academic flexibility at $r = .567^{**}$, $P < 0.001$.

Table (4): Demonstrates that, the effect of electronic rubric usability on academic justice and academic flexibility: The findings indicate that electronic rubric usability had a statistically significant effect on students' academic justice ($B = .877$, $t = 13.395$, $p < .001$), with regression model values of $R = .574$, $R^2 = .358$, $F = 179.41$, $p < .001$. With regard to academic flexibility, the results show that electronic rubric usability also had a statistically significant influence ($B = 2.583$, $t = 20.327$, $p < .001$). A coefficient such as $B = 2.383$ suggests that for each one-unit increase in the independent variable, the dependent variable increases by 2.383 units. In educational practice, this may reflect improvements in both academic justice and flexibility. The regression model for academic flexibility yielded $R = .697$, $R^2 = .535$, $F = 81.431$, $p < .001$.

Table (1): Demographic and academic characteristics of study participants (n=524)

Demographic and academic characteristics	No	%
Age		
Mean ± SD		22.12±2.02
Gender		
Male	342	65.3
Female	182	34.7
Residence		
rural	231	44.1
Urban	293	55.9
Marital statutes		
Single	503	95.9
Married	21	4.1
Previous Grade (GPA)		
Excellent (3.7 – 4.0)	122	23.3
Very good (3.3 – 3.6)	138	26.3
Good (2.7 – 3.2)	109	20.8
Pass (1.0 – 1.9)	103	19.7
Fail (0.0 – 0.9)	52	9.9

Table (2): Descriptive analysis of studied variables (n=524)

Variable	No. of items	Minimum	Maximum	Mean $\pm$ SD	Average items score	Average items score %
Electronic rubric usability	27	36	135	103.59 $\pm$ 26.704	4.15 $\pm$ 1.05	83%
Academic flexibility	30	31	148	116.90 $\pm$ 12.94	3.79 $\pm$ 1.445	74%
Academic Justice	24	25	120	98.11 $\pm$ 11.458	3.81 $\pm$ 1.34	76%

M, Mean; SD, Standard Deviation

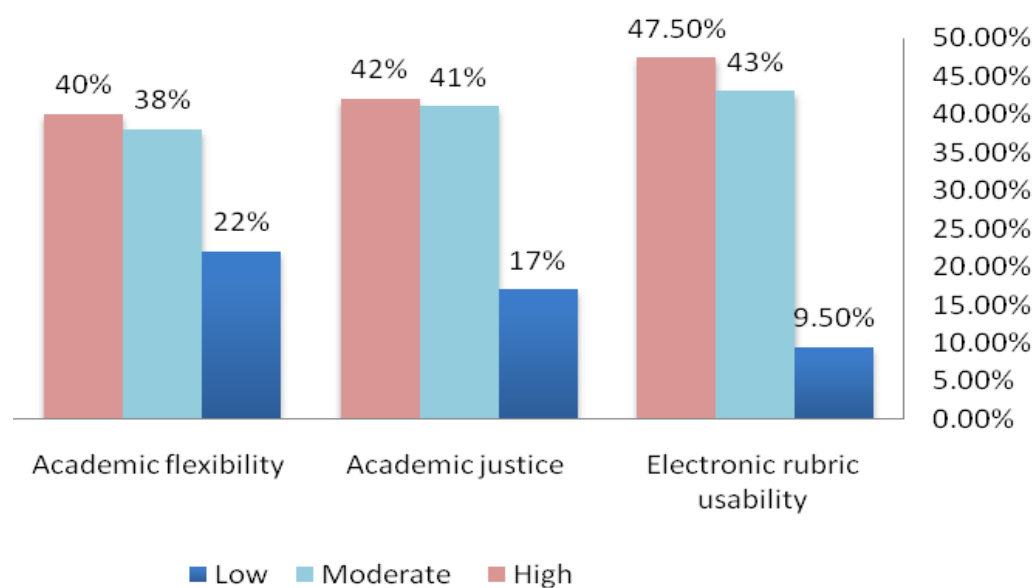
**Figure (1): Levels of students' academic rubric usability, academic flexibility and academic justice (n=524).**

Table (3): Correlation between studied variables (n=524).

Variable	1	2	3
Electronic rubric usability	1.00		
Academic Justice	.518** (.000)	1.00	
Academic flexibility	.747** (.000)	.567** (.000)	1.00

r= Pearson Correlation, **. Correlation is highly significant at the 0.01 level (2-tailed),

Table (4): Linear regression analysis for the effect of Electronic rubric usability on Academic Justice and Academic flexibility among participants students (n=524).

Model 1 Academic Justice	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	51.072	1.367		37.364	<0.001	48.384	53.760
Electronic rubric usability	.877	.058	.573	13.395	<0.001	.663	.891
R	.574						
R Square	.358						
F	179.41						
P	<0.001						
Model 2 Academic Flexibility							
(Constant)	20.357	2.413		11.742	<0.001	24.312	33.402
Electronic rubric usability	2.383	.102	.796	20.327	<0.001	2.392	2.795
R	.697						
R Square	.535						
F	81.431						
P	<0.001						

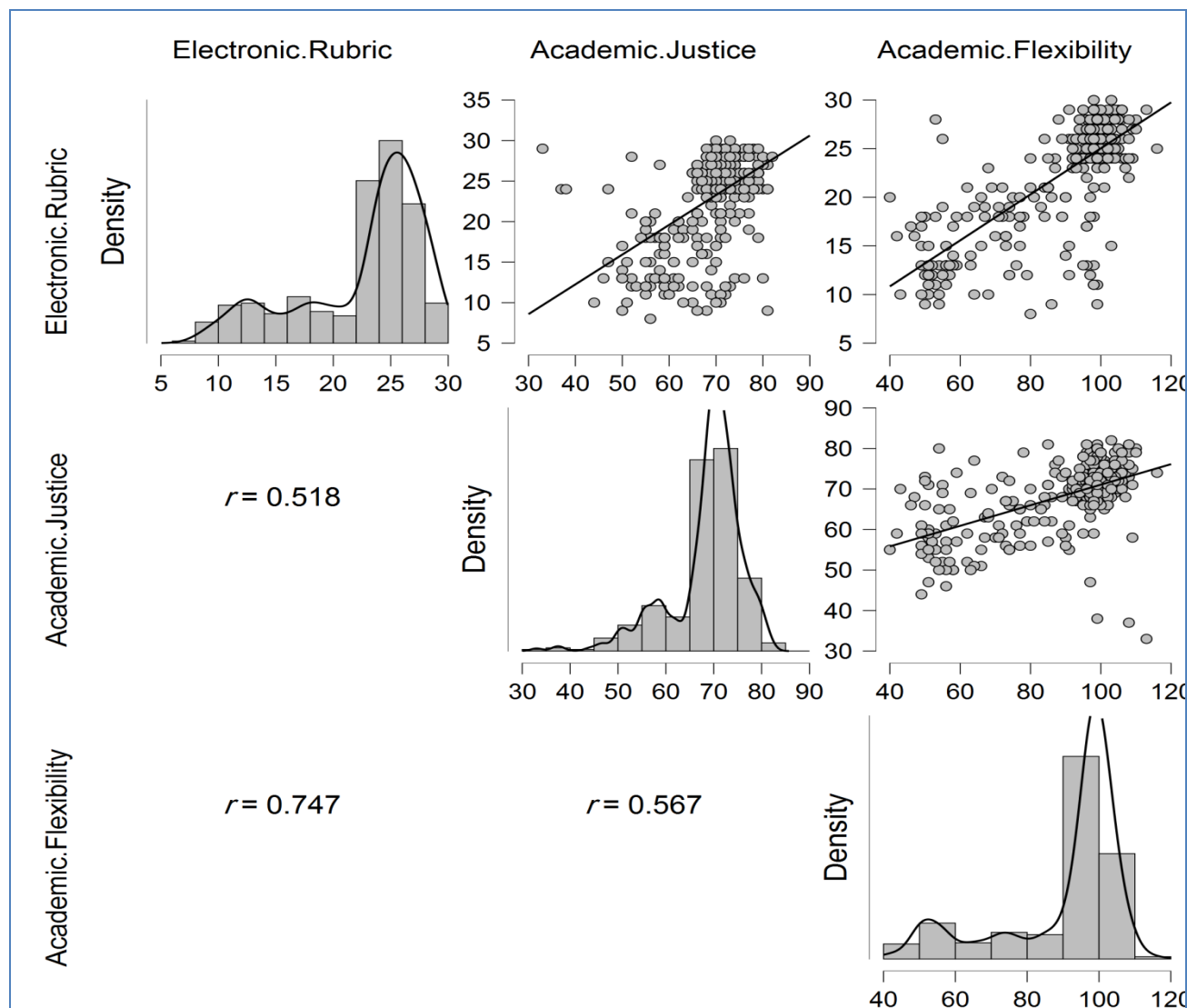


Figure (2): Density and Correlation between the study variables (n=524)

Discussion

Technology has changed our lives, and the health care system is no exception. So, the way nursing faculties teach and evaluate students must be integrated into the recent advances in the health care system. Nowadays, the assessment of nursing students has changed from the traditional techniques with written tests to more structured techniques in classroom and clinical settings, and assessment processes in university contexts can change educational practices. As a result, integrating technology in educational practices, such as using e-portfolios and e-rubrics, has become prevalent in nursing students' education and evaluations in order to achieve academic flexibility, autonomy, and fairness (**Ana et al., 2020; Sabet et al., 2022**).

The present study aims to investigate the role of electronic rubrics on academic flexibility and justice among nursing students. The findings revealing that nursing students with higher perception toward e-rubric usability demonstrated a higher level of academic flexibility and justice, suggesting that e-rubrics are vital for nursing students.

Our findings show a high level of nursing students' e-rubric usability. It can be interpreted as rubrics that are presented online can be easily incorporated with learning management systems, which are already being applied in all Egyptian nursing faculties as a general and in study settings as a specific. Students can be motivated when their work is being assessed with an online rubric, as it represents many privileges over a traditional or paper-based one, as it facilitates interactive learning, helps students to conduct self-assessments, provides them a chance for peer collaboration, and supports their Information and Communication Technology (ICT) competencies.

Along with that, students can easily use e-rubrics on mobile applications such as smart phones, tablet PCs, and various platforms such as Mac and Android, as long as the device has a browser application for internet access. Additionally, more immediate communication between teachers and students can be facilitated by e-rubrics, and students may be better able to self-regulate their learning and participate actively in the process due to frequent and speedy feedback.

Similar to our findings, studies portray the students' positive perception and high level of e-rubrics usability. **Wang (2017)** mentioned that e-rubrics promote greater interaction and help students become more independent in the learning process and increase their competence. Also, the study of **Perez-Guillén et al. (2022)** concluded that the majority of students have a high level of e-rubric usability, and 87.3% of them agreed that e-rubrics seemed to have the potential to promote learning by making criteria and expectations explicit, facilitating feedback, peer assessment, and great agreement among students regarding the usefulness of the e-rubric for self-assessment.

Moreover, **Sabet et al. (2022)** highlight that e-portfolio is a new learning and evaluation method that can encourage students to self-reflect and increase student-teacher interaction. They added that e-rubrics can be used as a valuable tool instead of traditional evaluation systems in virtual classroom and clinical settings. They also emphasized that e-rubric use also supported a student's ICT competencies, and e-rubrics are useful for the improvement of the quality of students' skills to achieve competence. In contrast, **Robbins and Marinkova (2023)** specified that student-related problems with e-rubrics are students not reading the rubrics, and this may be related to a lack of their ICT skills or a lack of interest in online reading. One of the main challenges is initial creating and implementing effective e-rubrics. Ineffective student evaluation can result from poorly constructed rubrics, whether they are digital or traditional (**Ling, 2025**).

Our findings show a high level of nursing students' academic flexibility and a positive correlation between students' e-rubric usability and academic flexibility, indicating that students' use of e-rubrics can increase their ability to customize their learning experience and foster their autonomy. In our context, utilizing educational technologies like e-rubric-based assessment could enhance students' opportunities for self-learning, as by combining clear, efficient, e-based assessment tools with adaptable teaching methods and supports, teachers are able to provide individualized learning opportunities. It can help nursing students become flexible, adaptable, and responsive in their future careers, enhance the educational environment, and foster a supportive and ongoing improvement culture. Also, easy modification of e-rubrics to fit different assignments improves relevance and accommodates diverse learning methods, which provide flexibility in learning. This point of view is supported by **Panadero et al. (2024)**, as they mentioned that academic flexibility is provided for students by integrating digital tools such as e-rubrics.

Additionally, e-rubrics enable prompt feedback on assignments, enabling students to make immediate edits and improve work before final submissions. This flexibility enables learners to modify their work iteratively instead of waiting for the conventional feedback process. In the same respect, **Cockett & Jackson (2018)** emphasized that using a rubric provides an opportunity for students to improve their work by providing prompt feedback and maintaining academic flexibility. Moreover, students can participate in peer and self-evaluation through the use of e-rubrics, which encourages self-directed learning. By empowering students to take charge of their education, this supports academic flexibility. Interactive components like connections to forums, films, and information can also be included in e-rubrics. This usability feature encourages increased student involvement and facilitates adaptable teaching strategies. Our interpretation can be supported by **Martín-Monje et al. (2014)** and **Ana et al. (2020)**, who mentioned that e-rubrics can increase academic flexibility by maintaining students' greater interaction and providing them with opportunities for interactive learning and self- and peer-assessment chances.

On the other hand, **Robbins & Marinkova (2023)** and **Rueda et al. (2024)** reported that not all students have access to a reliable computer or a high-speed internet connection, or they may lack ICT competencies. This can seriously affect their ability to participate fully in online course assessments. They added that online education and technology-based education are suited for students with high ICT skills and may become a problem for other students.

Moreover **Heil & Ifenthaler (2023)** reported that the transition to e-rubrics may encounter resistance from both faculty and students, and to use e-rubric platforms effectively, they may need extensive training and technical assistance, and some may feel that handwritten input is more flexible or intimate than the digital format. Although e-rubrics help standardize grading, there is a chance that an excessive dependence on automated features could result in a loss of the detailed qualitative feedback that is necessary for challenging learning assignments. (**Ling, 2025**). Another critical point is the possibility for e-rubrics to unintentionally limit the range of knowledge that can be acquired. Overly restrictive rubrics can hinder originality, critical thinking, and investigation beyond the parameters that are explicitly specified (**Dornisch, & McLoughlin, 2006**).

Our findings show a high level of nursing students' academic justice and a statistically significant positive correlation between participants' e-rubric usability and academic justice. Suggesting that applying e-rubrics in student assessment could enhance students' feelings of objectivity, equity, and fairness in their learning experiences. In our context, e-rubrics often provide clear, accurate evaluation criteria, helping to ensure that all students are assessed using the same criteria. This encourages academic justice by eliminating subjective prejudice

in grading. Additionally, an e-rubric can help students understand expectations and how their work will be evaluated. This transparency helps to build confidence in the assessment process and ensures that all students know what is required for success. Besides, every student, regardless of background, can feel more supported in learning with the help of real-time feedback from an electronic rubric. Moreover, it offers equitable chances for ongoing development, growth, and learning.

Our findings support the result of **Aly (2022)**, who mentioned that there is a high level of international students' perceptions of interactive academic justice. Also, he highlighted the role of educational and assessment fairness and objectivity in students' perception of academic justice. He also suggested that higher educational institutions can rely on educational technology to achieve equitable chances for students. Also, **Dooly & Comas-Quinn (2025)** mentioned that utilizing technology that tailors learning experiences to individual student needs can foster an equitable learning environment. They also emphasized the importance of students' access to educational technology to achieve justice. In line with these findings, **Burger (2017)** observed that the procedural justice of the students is greatly influenced by the method of assessment. Also, **Waldman et al., 2022**, highlighted the role of educational technology in shaping students' perception of academic justice. In contrast **Ling, (2025)** emphasized that e-rubrics do not necessarily facilitate valid judgments and may induced unfairness and subjective judgments'.

Our findings revealed a positive correlation between academic flexibility and academic justice, implying that achieving flexibility in education and evaluation and maintaining a tailored learning experience could achieve a positive perception of students toward academic justice, since both concepts revolve around fairness, transparency, and support within the educational experience. Our study findings are the case in the study of **Howell and Buck (2012)**, who asserted that explaining procedures of grading, flexibility in assessment, and providing feedback predict a higher level of student justice satisfaction. In the same respect, **Roshid et al. (2025)** and **van Wyk et al. (2024)** reported that flexibility in students' assessment was one of the fairness predictors and could enhance students' perception of academic justice.

Conclusion

Based on the outcomes of the standing study, it was concluded that the Electronic rubric usability had statistical significant influence on the students' Academic and Electronic rubric usability had statistical significant influence on the students' Academic Flexibility.

Limitations

Several limitations must be acknowledged. First, the use of a cross-sectional design restricts the ability to draw causal inferences between variables. Also, measurement bias due to self-reporting, the possibility of social desirability bias, and the lack of control for potential confounders. Second, the study was conducted within a single faculty and cultural context, which may limit the generalizability of the findings to other healthcare settings or regions.

Recommendations:

The following recommendations were made based on the findings of the current study:

1. Faculty should incorporate electronic rubrics into official student evaluation standards in order to improve academic fairness, objectivity, and transparency.
2. All faculty members should be given access to a uniform set of guidelines for the creation and use of electronic rubrics.
3. Conducting Regular training workshops for nursing teaching staff are necessary to guarantee that electronic rubrics are properly designed and used in accordance with accreditation standards and course objectives.
4. To enable the constant use of electronic rubrics in the teaching and assessment process, it is imperative to invest in digital infrastructure and platforms that support them.
5. Involving nursing students in the discussion of evaluation rubrics, when appropriate, may help in fostering a greater sense of academic justice and engagement.
6. Faculty members should provide detailed and timely feedback through rubrics to help students identify areas of strength and opportunities for improvement.
7. Regular evaluations should be conducted to assess the impact of electronic rubrics on students' perceptions of academic flexibility and fairness.
8. Investigate the faculty members' attitudes toward the use of electronic rubrics.
9. Broader studies with larger and more diverse student populations across multiple universities should be conducted to improve the generalizability of the findings.
10. Further investigation is needed to investigate the impact of electronic rubrics on student motivation, engagement, and long-term learning outcomes.
11. Future studies are recommended to compare the effectiveness of electronic versus paper-based rubrics in enhancing academic outcomes and perceived justice.

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الملخص العربي

الاستفادة من معايير التقييم الإلكترونية في تعليم التمريض: مسار نحو المرونة والعدالة الأكاديمية

مقدمة: تخضع العملية التعليمية داخل فصول طلاب التمريض للتقييم المنهجي. وتُعدّ معايير التقييم الإلكترونية أدوات فعّالة لقياس مدى تحقيق المتعلمين للأهداف المحددة مسبقاً بشكل موضوعي. ويُعدّ استخدام هذه الأدوات الرقمية ضرورياً لتعزيز العدالة والمرونة في التقييم الأكاديمي.

الهدف: هدفت هذه الدراسة إلى استكشاف دور المعايير التقييم الإلكترونية على المرونة والعدالة الأكاديمية بين طلاب التمريض.

تصميم البحث: أجريت دراسة مقطعية لهذا الغرض

مكان البحث: أجريت الدراسة في كلية التمريض بجامعة بنها، محافظة القليوبية، مصر.

العينة: شملت الدراسة 524 طالباً وطالبة من طلاب كلية التمريض من المستويات الأكاديمية الأربعة.

أدوات الدراسة: تم استخدام ثلاثة مقاييس: مقياس قابلية استخدام معايير التقييم الإلكترونية، ومقياس المرونة الأكاديمية لطلاب التمريض، ومقياس العدالة الأكاديمية لطلاب التمريض.

النتائج: أظهرت النتائج أن متوسط درجات المشاركين فيما يتعلق بقابلية استخدام معايير التقييم الإلكترونية كان 2.0533 ± 4.152 ، والعدالة الأكاديمية 4.3450 ± 3.8153 ، والمرونة الأكاديمية 2.4453 ± 3.793 . ووجد ارتباط إيجابي ذو دلالة إحصائية بين قابلية استخدام معايير التقييم الإلكترونية والعدالة الأكاديمية، وبين قابلية استخدام معايير التقييم الإلكترونية والمرونة الأكاديمية. كما وُجد ارتباط إيجابي ذو دلالة إحصائية بين العدالة الأكاديمية والمرونة الأكاديمية.

الخلاصة: أفاد طلاب التمريض بوجود علاقة ارتباط كبيرة بين سهولة استخدام معايير التقييم الإلكترونية والعدالة الأكاديمية والمرونة.

التوصيات: يجب تزويد جميع أعضاء هيئة التدريس بمجموعة موحدة من الإرشادات لإنشاء واستخدام نماذج التقييم الإلكترونية. وهناك حاجة إلى مزيد من الدراسات لبحث تأثير هذه النماذج على تحفيز الطلاب ومشاركتهم ونتائج التعلم على المدى الطويل.

الكلمات المفتاحية: المرونة والعدالة الأكاديمية، معايير التقييم الإلكترونية، طلاب التمريض