Fairness in Classroom Assessment: A Procedural Justice Perspective

Exploring Secondary School Students' Perceptions in Benishangul-Gumuz Region, Ethiopia

Presenter

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Content Outline

- Introduction
- Statement of the problem
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- Discussion & Recommendation

Introduction

- **Fairness as a Cornerstone of Quality Education**
  - ***Fundamentally shapes students' motivation, engagement, and trust (Rasooli et al., 2019)***
- When students perceive evaluations as just:
  - More likely to ***accept feedback***
  - Persist through ***academic challenges***
  - Develop deeper ***academic self-efficacy*** *(Çağlar, 2016)*
- ***A fair system gives all students equal and unbiased opportunities to demonstrate their learning, free from extraneous factors (Messick, 1995 ; Pellegrino et al., 2001).***

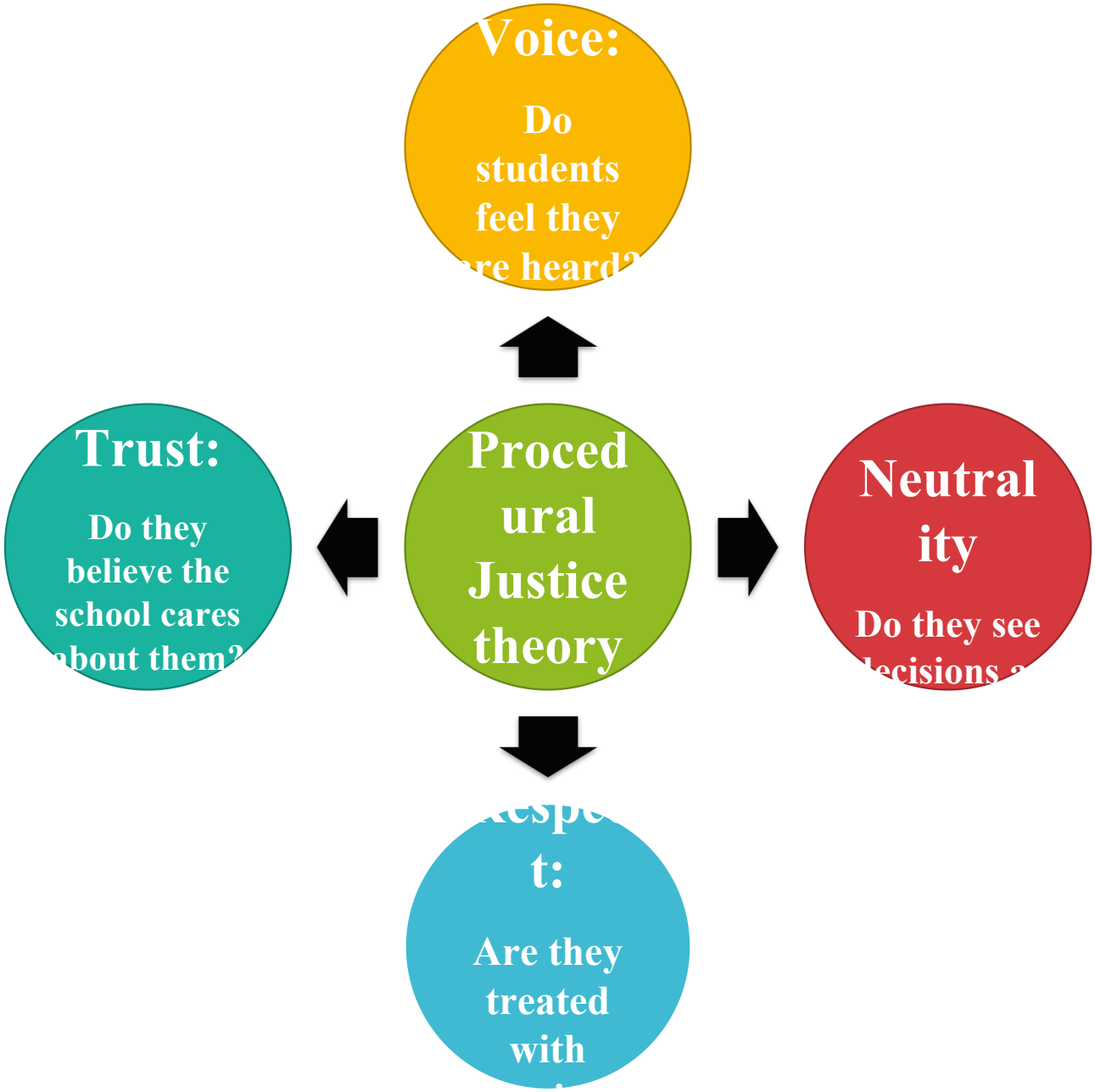
Fairness in Assessment

- Central principles
  - equity,
  - impartiality,
  - justice.
- ***(Linn & Gronlund, 2000).***
- ***Beyond Accuracy; Fairness = Subjective experience of the entire process, not just outcomes.***
  - ***Traditionally, fairness has been defined through a psychometric lens***
  - *Recent scholarship suggests **viewing fairness** not as an inherent quality of a tool, **but as a judgment made by students themselves.***
  - ***Shifting to a Student-Centered, Perceptual View***
  - **Need to move beyond *technical accuracy* to explore *subjective experiences*.**

Demographic Factors are Crucial in fairness assessment.

- **Gender:** *Potential for teacher bias or differing expectations (Bourke & Mentis, 2019).*
- **Grade Level:** *Students' understanding of justice evolves with age (Harlen, 2019).*
- **Residence (Urban vs. Rural):** *Resource disparities can profoundly impact perceptions of equity (World Bank, 2021).*

Theoretical Framework



- The central argument of this framework is that the
  - ***Effectiveness*** and
  - ***Legitimacy*** of educational processes (e.g., discipline, grading, policy-making)
  - Depend not ***on their objective design***, but on the ***extent*** to which students perceive them to be ***fair***.

Statement of the problem

Research Gap in Ethiopian Context

- **Missing Student Perspectives**
- Existing Ethiopian research focuses on:
  - ***Technical aspects*** *(Abdi & Bekele, 2018)*
  - ***Teacher competence*** *(Mekonnen & Desta, 2017)*
  - ***Implementation challenges*** *(Worku & Kassaye, 2020)*
- *Ethiopian education research has primarily focused on* ***access***, ***quality***, *and* ***continuous assessment*** *implementation (e.g., Abera & Tolessa, 2019; Dejene, 2021; Jemberu, 2015; MOE, 2018).*

- *For instance,*
  - ***Mekonnen and Desta (2017) studied teacher competence in continuous assessment, highlighting practical challenges but not addressing student perceptions of fairness in these assessments.***
- *Similarly,*
  - ***Abdi and Bekele (2018) examined national examinations' alignment with the curriculum, noting content validity issues but not exploring students' experiences of fairness in these evaluations***

Student experiences overlooked

- Even if More *recently studies* focused on ***teachers perspectives,***
  - *Studies on* ***teachers' beliefs about assessment*** *(e.g., Demissie et al., 2024),*
  - ***Formative assessment*** *utilization (e.g., Murniarti & Sudarman, 2025)*
  - ***Policy-practice discrepancies*** *(e.g., Gemechu, 2023) also illuminate critical aspects of assessment from the perspective of educators or systemic challenges.*
  - ***The student perspective—a key stakeholder experience—has been consistently omitted.***

- **Critical Omissions**:
  - How students interpret *practices through* ***justice lens***
  - Student ***role as active stakeholders*** (not passive receivers)
  - ***Lived experiences of fairness*** in Benishangul-Gumuz region

This Study: ***Centers student perceptions*** through ***procedural justice framework*** (***Voice, Neutrality, Respect, Trustworthiness***)

Research Context: Benishangul-Gumuz Region

- **Unique Setting for Investigation**
  - Significant ***socio-cultural diversity***: with distinct educational experiences.
  - Pronounced ***urban-rural*** educational disparities (UNICEF, 2020)

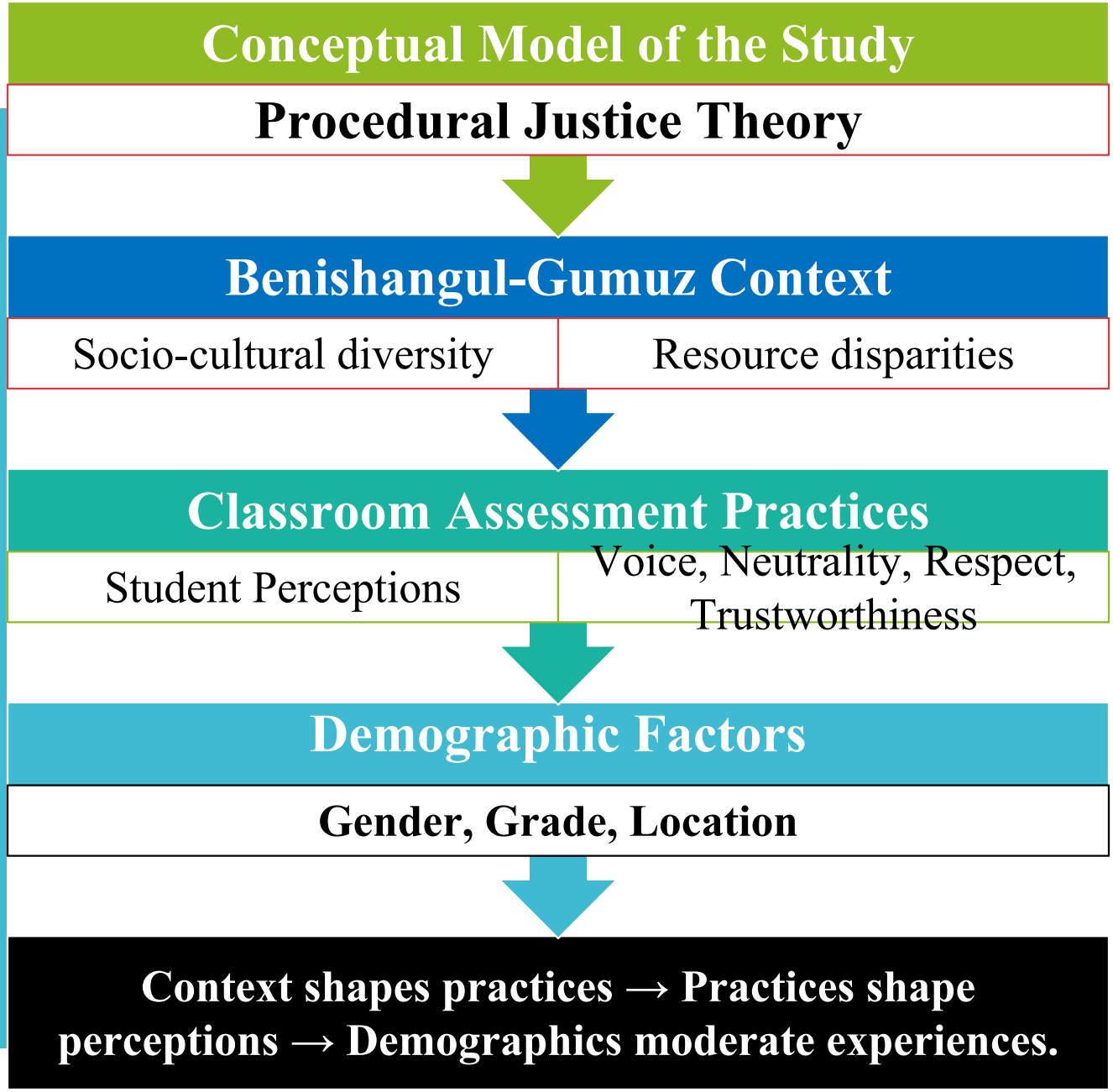
- ***Resource scarcity*** challenges justice principles:
  - Neutrality under pressure
  - Consistency difficult to maintain
  - Respect compromised by systemic strains

- **Marginalized Groups**: Rural ***females*** face ***compounded barriers***

- **Policy Imperative**: ***not understanding local realities*** essential for equitable assessment practices

Conceptual Model of the Study

Linking Theory, Context, and Experience



Research Purpose & Questions

Purpose:

- To analyze secondary school students' ***perceptions of classroom assessment*** in Benishangul-Gumuz through ***Procedural Justice Theory***, focusing on ***how systemic challenges influence*** their experiences of fairness.

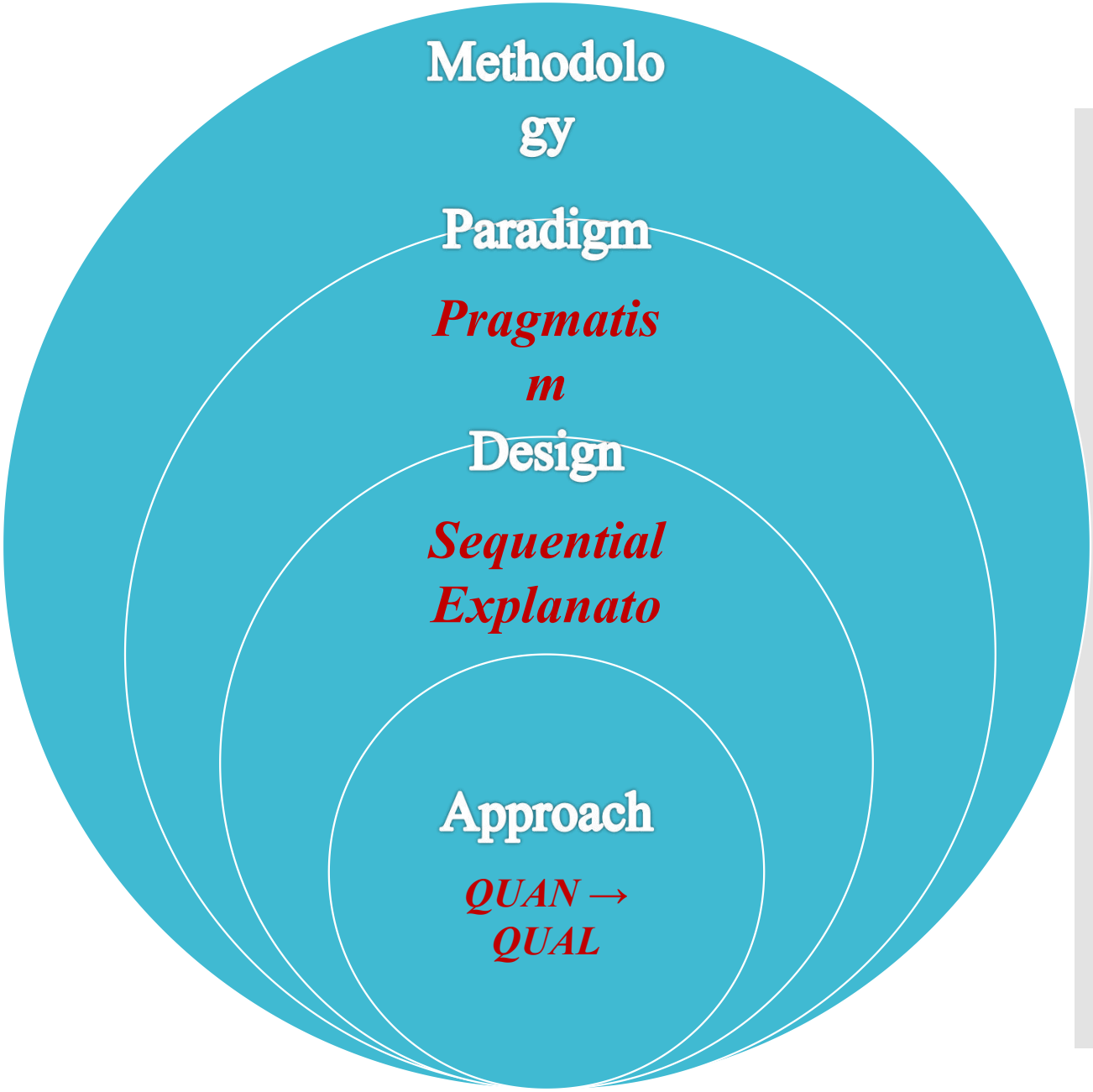
Research Questions:

1. **Perception Extent:** *To what extent do students perceive assessments as **procedurally just** (voice, neutrality, respect, trustworthiness)?*

2. **Demographic Interactions:** *How do **gender, grade level, and rural/urban** residence predict these perceptions?*

3. **Narrative Insights:** *How do student experiences reveal **support/violation of procedural justice principles**?*

Pragmatic Sequential Mixed-Methods Approach



Sampling Strategy

- **Target Population:** (N=17,709) ***(Grades 9-11)*** from ***30 secondary*** schools in Assosa Zone.
- **Sampling Strategy:** ***Multi-Stage Sampling*** procedure was used to ensure representation.
- **Quantitative (*n=346*)** (Yamane formula)
  - ***Stage 1: 16 schools stratified (8 urban/8 rural)***
  - ***Stage 2: Random class selection***
  - ***Stage 3: Stratified systematic sampling by gender***
- **Qualitative (*n=66*)**
- ***Purposive sampling*** explaining QUAN patterns
  - 6 Focus Groups (n=36; stratified by grade/residence)
  - 30 Interviews (maximum variation)

Participant Demographics

Table:1

Stratified Sample Characteristics (n=346)

Characteristic	Category	n	%
Gender	Male	172	49.7
	Female	174	50.3
Grade Level	9th	117	33.8
	10th	115	33.2
	11th	114	32.9
Residence	Urban	176	50.9
	Rural	170	49.1

Results for RQ1

RQ1 *Results – Overall Perceptions of Fairness*

Table 3

Statistic	Value	Interpretation
Mean (*M*)	2.45	Below neutral (3.00) → Negative perception (***general dissatisfaction***)
Median	2.30	***Majority*** of students (50%) scored ≤2.30 ***perceived*** assessment practices as ***Unfair***
Standard Deviation (*SD*)	0.85	Moderate variability, but overall trend is ***negative***
Minimum/ Maximum	1.00 –4.20	Range suggests some ***positive outliers,*** but rare

Interpretation of the result

- The **frequency of responses**
  - 40% of students selected 1–2,
  - 30% selected 2–3,
  - 20% selected 3–4,
  - 10% selected 4–5.

- Most students (70%) rated fairness as ***'Unfair'*** (1–2) or ***'Somewhat Unfair***' (2–3)."

- The skewed distribution confirms the mean/median findings— ***fairness is not the norm.***

Results for RQ2

- **RQ2:** ***How do student demographic factors*** (***gender, grade level, rural/urban residence***) relate to perceptions of classroom assessment fairness?
  - Traditional ***regression violates*** independence assumptions— ***multilevel modeling (MLM)*** is required.
- **Why Multilevel Modeling?**
  - Students in the same school ***share contextual factors*** (e.g., ***teacher practices, school resources***), making their perceptions correlated.

To explore the effects of

- ***Individual differences*** (**differences between individuals in the same group**)
- ***Group/clustering effects*** (**differences between groups**)

Null Model Results (Clustering Confirmation)

- **Key Finding**:
  - **ICC = 0.25** → ***25%*** of total variance in fairness perceptions is attributed to ***differences between schools*****.**

Random Effect	**Variance Estimate**	**ICC**
School-Level Variance	0.15	0.25
Student-Level Residual Variance	0.45	—

- This significant clustering effect statistically justifies the use of a multi-level model (MLM) for analysis.

Main Effects Model: Justifying the Model

Table 2: Relationships Between Demographic Factors and Fairness Perception

Variable	B	*P- value*
Gender (Female)	0.10	0.212
Grade level (10^{th})	-0.30	0.001
Grade level (11^{th})	-0.60	<0.001
Residence (Rural)	-0.50	<0.001

Key Predictors of Fairness

- **Significant Factors ($p < .01$):**
  - **Grade Level:** ***10th/11th*** graders report ***lower fairness*** than ***9th*** graders (β_0 = -0.30 to -0.60).
  - **Rural Residence:** ***Rural*** students report ***lower fairness*** than ***urban*** peers (β_0 = -0.50).
- **Non-Significant Factor:** No difference between male/female students (β_0 = 0.10, p = .212).
- **Equation:**
- $Fairness_{ij} = 2.80 + 0.10(Female_{ij}) - 0.30(10th_{ij}) - 0.60(11th_{ij}) - 0.50(Rural_{ij}) + u_{0j} + e_{ij}$

Interaction Effect Model:

- **Gender × Residence Moderation**
  - **Critical Finding:** Rural residence has a ***stronger negative effect on female students*** (β_0 = -0.40, p = .001).
  - **Interpretation:** ***Rural female students face*** a "***double disadvantage***"—rural context exacerbates gender-based inequities in assessment experiences.
- **Equation:**
  - $Fairness_{ij} = 2.90 + 0.05(Female_{ij}) - 0.31(10th_{ij}) - 0.62(11th_{ij}) - 0.40(Rural_{ij}) - 0.40(Female_{ij} \times Rural_{ij}) + u_{0j} + e_{ij}$

Qualitative Findings

- **(RQ3):**
  - ***What Factors Shape Secondary Students' Views of Fair Assessment Practices?***
- **Purpose:**
  - Explore ***why demographic disparities*** (from ***RQ1 & 2***) exist by centering student experiences.
- **Method:**
  - Thematic analysis of ***36 focus group*** discussions (6 groups) and ***30 individual interviews***.
- **Approach:**
  - ***Inductive coding*** (Braun & Clarke, 2006) to identify themes emerging from student narratives.

Core Themes

- **What Students Say Matters Most**

- ***Six interrelated themes*** explain perceptions of fairness, organized by priority:

1. Clarity & Transparency
2. Bias & Impartiality
3. Assessment Method Diversity
4. Teacher Feedback Quality
5. Resource Equity
6. Consequence Clarity

Theme 1

- **Clarity & Transparency of Criteria**
  - **Core Insight:**
    - ***Ambiguity breeds distrust***; explicit rules build trust.
  - **Student Quote:**
    - ***"If we don't know what the teacher wants, how can we be sure if we're being graded fairly?" (Grade 10, Urban Female)***
  - **Implication:**
    - ***Vague instructions/rubrics*** are a primary source of ***perceived injustice***.

Theme 2

- **Perceived Bias & Impartiality**
  - **Core Insight:**
    - Students ***detect favoritism*** and ***stereotyping***, eroding trust.
  - **Student Quote:**
    - ***"Sometimes it feels like the teacher already has favorite students… they get better marks even if their work isn't always the best." (Grade 9, Rural Female)***
  - **Link to RQ2:**
    - Explains ***gender-residence interaction*** (rural females feel most disadvantaged).

Theme 3

- **Fairness of Assessment Methods**
  - **Core Insight:**
    - ***Over-reliance on exams*** disadvantages diverse learners.
  - **Student Quote:**
    - *"It's not fair if we only have tests. Some of us are better at showing what we know in other ways, like presentations." (**Grade 11, Urban male**)*
  - **Demand:**
    - ***Multimodal assessments*** (projects, discussions) to match learning styles.

Theme 4

- **Role of Teacher Feedback**
  - **Core Insight:**
    - ***Timely, specific feedback*** indications respect and growth.
  - **Student Quote:**
    - ***"When the teacher gives us good feedback, even if we don't do well, we understand why and it feels fairer." (Grade 9, Urban Male).***
  - **Contrast:**
    - Vague/no feedback = "Why bother trying?"

Theme 5

- **Impact of Resource Availability**
  - **Core Insight:**
    - ***Rural students face structural barriers*** (lack of books, tech, labs).
  - **Student Quote:**
    - ***"It's hard when the test is about things we don't have proper books or materials for in our village." (Grade 10, Rural Male)***
  - **Link to RQ2:**
    - Directly ***explains lower fairness*** perceptions among rural students.

Theme 6

- **Consequences & Interpretation of Results**
  - **Core Insight:**
    - ***High-stakes assessments without*** *transparency breed anxiety.*
  - **Student Quote:**
    - ***"We worry a lot about exams because they decide everything, but we don't always understand how they decide." (Grade 11, Rural Female)***
  - **Demand:**
    - ***Clear communication*** about how grades impact futures.

Integration Paths

- **Sequential explanatory (*quantitative → qualitative*) to triangulate findings.**
  - **Rationale:**
    - **Quantitative data identifies *what patterns exist*; qualitative data explains *why they occur*.**
  - **Key Sources:**
    - **Quantitative:** Descriptive stats (RQ1) + Multilevel models (RQ2).
    - **Qualitative:** Thematic analysis of focus groups/interviews (RQ3).

- **Overall Perceptions of Fairness**
  - **Quantitative Finding (RQ1):**
    - Low fairness ($M = 2.45$, $SD = 0.85$).
  - **Qualitative Explanation:**
    - **Widespread dissatisfaction rooted in *multiple intersecting themes:***
      - **Unclear criteria, bias, resource gaps, high-stakes pressure.**
  - **Student Voice:**
    - ***"Fairness is not just about the marks; it's about whether we feel respected and understood." (Grade 10, Urban Female)***

Decline in Fairness with Grade Level

- **Quantitative Finding (RQ2):**
  - ***10th & 11th*** graders report significantly lower fairness than ***9th graders*** (*B* = -0.30 to -0.60).
- **Qualitative Explanation:**
  - **Consequences & Interpretation:** ***Older students face higher-stakes*** assessments with solid progression rules.
  - **Clarity Gaps:** ***Advanced content*** increases demand for explicit guidance.
- **Student Voice:**
  - ***"We worry a lot about exams because they decide everything, but we don't always understand how they decide." (Grade 11, Rural Female)***

Rural Residence & Resource Inequity

- **Quantitative Finding (RQ2):**
  - ***Rural students*** report a significant lower fairness ($p < .001$).
- **Qualitative Explanation:**
  - **Impact of Resource Availability:** Rural students ***lack books, tech, and qualified teachers.***
  - **Structural Barrier:** ***"Not given the same opportunities to prepare" (Grade 10, Rural Male).***
- **Visual:** Side-by-side comparison of urban vs. rural resource access (e.g., lab equipment, internet).

Gender × Residence Interaction

- **Quantitative Finding (RQ2):**
  - Rural female students have the lowest fairness (M = 2.15).
- **Qualitative Explanation:**
  - **Compounded Disadvantage:** Rural ***resource gaps*** + ***gendered bias***.
  - **Intersectionality:** Rural females face unique barriers (***double stigma of gender*** + ***rurality***).
- **Student Voice:**
  - ***"Sometimes it feels like the teacher already has favorite students… and we [rural girls] get overlooked." (Grade 9, Rural Female)***

Qualitative Themes Deepening Quantitative Insights

Quantitative Pattern	Qualitative Theme	Key Insight
Low overall fairness (M=2.45)	Clarity/Transparency	*Ambiguity erodes trust; "we can't be sure we're graded fairly." students demand explicit rubrics.*
Rural disadvantage	Resource Availability	*Limited access to materials/tech creates systemic inequity. limits preparation opportunities.*
Grade-level decline	Consequences/Interpretation	*High-stakes assessment pressure + lack of transparency increase anxiety in older students.*
Rural females worst off	Bias + Resources	*Compounded disadvantage: resource gaps + gendered bias amplify unfairness. Intersectional discrimination harm.*

Broader Nuances From Qualitative Data

- **Fairness Beyond Grades:**
  - **Assessment Methods:** Students ***demand diversity*** (projects/presentations over exams).
  - **Feedback:** Timely, specific feedback = ***"feels fairer"*** (Grade 9, Urban Male).
- **Relational Justice:** Fairness ***tied to respect*** ("felt valued" vs. "just a number").

Theoretical & Practical Implications

Theoretical Contributions

- Validates **contextual fairness**:
  - ***Demographic disparities*** (grade, residence, gender-residence) + ***assessment practices*** (clarity, bias, resources) jointly ***shape fairness*** perceptions.
  - ***Challenges*** universal fairness frameworks;
    - Emphasizes ***localized***, student-centered design.
- Universal fairness framework
  - Assumes **a single, standardized approach** to fairness works for all students, regardless of their background.
- But the findings suggests this assumption is ***flawed*** because:
  - **Cultural diversity**: What feels "fair" to one group may feel alienating to another
  - **Historical inequities**: Universal frameworks often ***overlook systemic barriers***, like racism and colonialism, that affect students' experiences of fairness.

Practical Implications

- **Urgency:** ***Rural female*** students face ***compounded inequities***; systemic change is needed.
  - Overlapping, intersecting disadvantages that rural female students experience due to their:
  - **Gender**: gender-based violence (face pressure to prioritize domestic roles over education).
  - **Rurality**: Confronting barriers like poor infrastructure or geographic isolation.
- **Call to Action:** ***Prioritize clarity***, ***resource equity,*** and ***teacher support*** to build fairer assessment systems.
  - Address root causes of unfair assessment by ensuring transparency, equitable resource distribution, and empowering teachers to create equitable systems for all students.

Practical Recommendations

1. **Educators/Teachers:**
   - ***Ensure clarity*** (grading rubrics, pre-assessment discussions, design unbiased tests, interpret data fairly).
   - ***Diversify assessments*** (projects, presentations) to align with learning styles.
   - Provide ***timely, constructive feedback*** to build trust.
2. **Policymakers:**
   - Address ***rural resource inequities*** (books, tech, infrastructure, funding).
   - Develop ***culturally responsive assessment frameworks*** **(**Acknowledge and respect cultural diversity, moving beyond "one-size-fits-all").
   - Fund ***teacher PD*** on bias mitigation and fair assessment design(need skills to design unbiased tests, multiple modes of assessment**)** .

Limitations & Future Research

- **Limitations:**
  - Cross-sectional design (cannot infer causality);
  - lacks teacher/observational data.
- **Future Directions:**
  - Longitudinal studies tracking fairness perceptions over time.
  - Investigate effectiveness of interventions (e.g., bias training, resource allocation).

Thanks all