International Journal of Home Economics, Hospitality and Allied Research, 2(2): 28-44.
DOI: https://doi.org/10.57012/ijhhr.v2n2.003
Received: September 16, 2023
Revised: November 19, 2023
Accepted: December 01, 2023
Published: December 06, 2023

Original Research Report

Teachers' Feedback Practices, Students' Engagement and Academic Adjustment: Moderating Effects of Gender

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Abstract: This study developed a structural path model that explained economics students' academic adjustments using teachers' feedback and students' engagement, taking cognisance of the moderating effects of students' gender. This study used a correlational research design. Through random sampling, 150 participants were recruited for this study. The data collection instruments used were questionnaires on teachers' oral and written feedback, students' engagement, and academic adjustments. Model fitness tests were established using Partial Least Square statistical tools. Research questions were answered using path diagrams and path coefficients. The study revealed that the most meaningful recursive structural model that explains students' academic adjustment in economics as moderated by their gender is a model involving teachers' feedback practices and students' engagement. This study revealed that the combined effects of teachers' oral and written feedback and students' academic engagement accounted for 93% of variations in students' academic adjustment. Similarly, teachers' feedback practices accounted for 85% of variations in students' academic engagement. Finally, students' gender was a significant moderator of the relationship between teachers' feedback practices, students' engagement, and academic adjustments. This study is significant because it is the first of its kind to develop a structural moderating effect of gender on the relationship between teachers' feedback practices, students' engagement, and academic adjustment. This study recommends that economics teachers use feedback that stimulates students' engagement to enhance academic adjustment. In addition, school administrators should train and retrain economics teachers on effective and sufficient feedback practices for enhancing students' academic adjustment.

Keywords: Academic Adjustment, Academic Engagement, Feedback, Gender, Students

1. Introduction

Feedback is substantial in the implementation of curriculum content in the classroom. Hence, both the effectiveness and the significance of feedback in improving students' ability to learn are well-recognised and documented (Carless & Boud, 2018; Lipnevich & Smith, 2022; Yao et al., 2021). Nevertheless, it is important to recognise that the efficacy of feedback is a function of students' understanding of the feedback provided and their active involvement with it (Nicol, 2021). Receiving feedback allows students to appreciate information in a variety of ways and apply it to improve their performance (Carless & Boud, 2018). In teaching and learning processes, teachers are the foremost sources of feedback that direct and facilitate students' learning towards the actualisation of learning objectives (Yao et al., 2021). Due to its significance in teaching and learning processes, teachers use different means to provide feedback and increase its use among students (Amedu, 2021).

Oral and written feedback are two major types of feedback teachers provide in higher education to promote and facilitate academic adjustment. Teachers' written feedback is responses in the form of comments provided to guide and promote students' learning proficiency (Bitchener & Storch, 2016; Li & Vuono, 2019), which aids in students' academic adjustment. This feedback approach has been established as an intervention extensively used to scaffold Economics students' writing skills and facilitate their writing outputs (Cheng & Liu, 2022; Lee, 2020). In addition, written feedback can boost students' self-confidence in writing and facilitate their engagement in learning processes, which are essential for their academic adjustment. Written feedback's merit could be perceived by its robustness, as it enables students to view and reflect on it several times for effective academic adjustment. Austen and Malone (2018) noted that written feedback comments can be directed to individual students or referenced to a particular related publication that students could consult to learn more. Existing literature has proven that written comments can produce an abundance of instructions, mostly for poorly performing or "borderline" students (Denison et al., 2016; Nuland et al., 2012).

Similarly, oral feedback is another form of feedback that teachers commonly use in the classroom for effective classroom interaction. Oral feedback provides opportunities for students and teachers to engage in interaction, and students can evaluate and respond to teachers' feedback and seek elaboration, thereby facilitating dialogic practices (Gamlem & Munthe, 2014). The most significant impact of oral feedback is to ensure that errors are eliminated immediately before they form a bad habit and become part of students' lives (Tarigan et al., 2023). This could facilitate students' academic adjustment in teaching and learning processes since it aims to clear students' misconceptions and enhance students' academic adjustment. As a result, it is evident that oral feedback provided by teachers to their students to assist them in resolving their academic problems and to clarify any previously written feedback plays a vital role in their understanding and improvement. Oral feedback targets students who have difficulty understanding some concepts (Mohammed & Fairz, 2013). Through oral feedback, students can interact verbally with teachers face-to-face based on certain questions that they misunderstand or misinterpret. In addition, this can also take place in the classroom when students interact with their teachers using a question-and-answer approach and in private interactions with their teachers. Therefore, oral feedback promotes personalised or individualised instruction in the classroom (Chambers-Schuldt, 2019).

Therefore, teacher feedback can assist economics students in making academic adjustments in the classroom. Academic adjustment is students' adoption and adaptation to changes in their attitudes,

behaviours, values, rules, regulations, and social norms of the school environment to fit into and be accepted into the new study environment and enhance learning outcomes (Ahmad et al, 2015). Students' academic adjustment is the outcome of the dynamic constructive association between students and the university environment which enhances the development of individuals (Yadak, 2017). Students' academic adjustment could be measured by student functioning in four distinct domains, academic, social, personal emotional, and institutional adjustments (Irfan et al., 2020). Academic adjustment is multifaceted in nature because it reflects students' learning ability, motivations, academic goal conceptualisation, strategies to achieve their target goals, and satisfaction with their academic environment (Baker & Siryk in Irfan et al., 2020). Newly admitted students are associated with academic adjustment problems at university. Feedback from teachers is expected to be a key factor in the academic adjustment of students. As a result, the effectiveness of teachers' feedback on students' academic adjustment is determined by the extent to which students are engaged with the feedback provided by the teachers.

Therefore, for teachers' feedback to be effective in enhancing students' academic adjustment, students are required to vigorously engage in their learning activities while reflecting on the feedback provided (Yu et al., 2019). Students' academic engagement is measured by the extent of inquisitiveness displayed by students, the level of cooperation they exhibit with others in the course, their consistent efforts, and their inspiration to learn from the course (Briggs, 2015). To date, little is known about students' engagement with teachers' feedback (Koltovskaia, 2020; Zhang, 2020). Students have varying degrees of engagement in the feedback provided by teachers, which reflects their perception of feedback and the use of the revision process which is dependent upon contextual factors of the individual students (Koltovskaia, 2020; Zhang, 2020). Students' engagement can be moderated by the feedback provided by teachers since engagement involves students' participation in classroom activities and extra time devoted to learning economics content. Three kinds of engagement are used by students: behavioural, emotional, and cognitive engagement (Conner, 2011; Kraft & Dougherty, 2013; Trowler, 2010). Hoff and Lopus (2014) reported that an index of students' engagement could influence achievement. As a result, students' perception of teachers' feedback influences how they engage with feedback, which in turn affects their level of academic adjustment.

Similarly, providing oral and written feedback to students does not automatically translate to academic adjustment for Economics students because moderating variables like students' gender affect the effectiveness of teachers' feedback aimed at adjusting students academically. To date, the influence of students' gender and engagement on the association between teachers' feedback practices and students' academic adjustment has not been established.

Students' gender is a known moderating variable that influences their learning process. However, there is controversy among researchers about the influence of gender variables on students' academic adjustment. Some researchers found that gender affects university students' psychological and social dimensions (Inman, 2017; Yau & Chang, 2014), while other researchers indicated that gender does not influence students' academic adjustment (Nidhi & Kermane, 2015; Winga et al., 2011). As a result of this controversy, this study aimed to establish the moderating effect of students' gender with regard to teachers' feedback practices and students' academic adjustment. Mudhovozi (2012) reported that the first year of study is a stressful period for students at higher education institutions in which they experience both social and academic adjustment problems – however, female students are more exposed to severe academic adjustment problems than their male counterparts.

A significant amount of research has examined the efficacy of teachers' feedback on the learning process, especially in science, English, and mathematics (Alqassab et al., 2018). Oche (2012) revealed that teachers' prompt feedback enhanced students' achievement in mathematics, irrespective of their gender. Lipnevich and Smith (2022) reported that teachers' detailed feedback on students' work was significantly related to students' improvement in essay grades and that providing feedback alone to students without a grade was found to be effective. Computer-mediated feedback is effective in improving student performance (AbuSeileek & Abualshar, 2014). On the relative effectiveness of peer and teacher feedback, Ruegg (2015) reported that teacher feedback was significantly associated with meaning-level issues and content since students exposed to teacher feedback gained higher achievement scores than students exposed to peer feedback. On the quantity and quality of the feedback given, research has established that feedback (written or oral) provided by teachers is deeply rooted in meaning-level feedback, unlike peer-related feedback that addresses surface-level feedback (Dressler et al., 2019).

Furthermore, concerning students' engagement with feedback, Palfreyman (2013) revealed that students' engagement with feedback did not always correspond to their understanding of learning and assessment, indicating that other variables affect engagement. In comparison to students' engagement with teachers, peers, and automated feedback, Tian and Zhou (2020) found that teachers' feedback was twice as meaning-level-oriented as automated feedback, and peer feedback was between surface-level and meaning-level feedback. Teacher feedback was found to have the exact opposite effect of automated feedback. In addition, students used teacher feedback for the sentences and paragraphs of their redrafts. Further, a study investigated the degree of student engagement with teacher-written feedback and found that language proficiency moderated students' engagement in written feedback from teachers and that affective, cognitive, and behavioural engagement were not linearly related (Cheng & Liu, 2022).

The relationship between students' academic adjustment and a variety of psychological variables has been established in the literature. Yadak (2017) revealed that no meaningful association was found between the emotional dimension and academic adjustment, whereas a meaningful association was found between the cognitive dimension and perceived self-efficacy. The relationship between perceived family environment and academic adjustment was investigated (Mohanraj & Latha, 2005). In the study, positive correlations were found between the family environment components, the family adjustment, and the academic adjustment. A study revealed that the correlation between parental marital status and students' adaptation, place of residence, and academic adjustment was not significant. However, emotional adjustment, social adjustment, goal commitment, and place of residence were significantly associated with each other (Viet, 2021). In addition, a study found that the majority of university students have an average level of social and academic adjustment, while male students have better academic adjustment (Ali et al., 2018).

Previous studies have demonstrated that students' gender plays a significant role in the learning process. Tomazin et al. (2023) reported that in a study in which students were exposed to teachers' feedback and annotated exemplars, female students scored higher than males in both the first and final drafts, regardless of the condition of the teachers' feedback. Students' gender was significantly correlated with personal and emotional adjustment (Viet, 2021). Similarly, there is no significant difference between male and female students' adjustment to home, school, and emotions; however, a significant difference exists between male and female students' social adjustment (Tripathy & Sahu, 2018).

In light of the above studies, this current study is significant in the following ways: In contrast to previous studies that compared teachers' feedback with peer feedback, this study examines the relationship between two modes of feedback (oral and written) and students' academic advancement. Second, previous studies (Dressler et al., 2019; Tian & Zhou 2020) have emphasised that teachers' feedback is rooted in content and contextual meaning; hence, there is a need to investigate further to determine what kind of teachers' feedback is effective for students' academic adjustment in the context of teaching and learning of Economics.

The current study is unique in that educational researchers have not examined the relationship between teachers' feedback practices and students' academic adjustment before. Using a novel research lens, this study aimed to develop a recursive structural model to explain the effect of teachers' feedback practices and students' engagement on students' academic adjustment. As part of this study, we sought to reveal the variance in students' adjustment that can be explained by teachers' feedback (oral and written) and students' engagement when moderated by students' gender. The findings of this study would make a significant contribution to higher education as they would bring into focus the potential moderating effect of gender on the relationship among teachers' feedback practices, students' engagement, and students' academic adjustment variables in the teaching and learning of Economics in higher education institutions. This study intends to provide educators and educational administrators with information on the need to prioritise effective feedback in the learning process in Nigeria.

1.1. Statement of Problem

The importance of teachers' feedback in the implementation of Economics content cannot be overstated. However, despite the quality of oral and written feedback that teachers provide, there still exists a wide gap between students' academic adjustment as reflected in their achievement. Literature has attributed this wide gap to the extent of students' engagement in the feedback teachers provide and the influence of students' gender. An extensive literature search has indicated that there is a dearth of empirical studies on the relationship between teachers' feedback practices, students' engagement, and students' academic adjustment as moderated by students' gender. Therefore, this study aimed to establish the association among teachers' feedback practices, students' engagement, and students' academic adjustment in Economics as moderated by students' gender.

1.2. Purpose of the Study

The general purpose of this research was to establish the moderating influence of students' gender on the relationship between teachers' feedback practices, students' engagement, and academic adjustment of first-year students. Specifically, this study aimed to:

(a) Develop a structural model that explains the influence of teachers' feedback and students' engagement on students' academic adjustment in economics as moderated by gender and
(b) Establish the direction and strength of the relationship among teachers' feedback practices, students' engagements, and students' academic adjustment as moderated by gender.

1.3. Research Questions

The following research questions guided the study:

(a) What is the structural model that explains the influence of teachers' feedback and students' engagement on students' academic adjustment in economics as moderated by gender?

(b) What is the direction and strength of the relationship among teachers' feedback practices, students' engagement, and students' academic adjustment as moderated by gender?

2. Materials and Methods

2.1. Design for the Study

This study used a correlational research design. Nworgu (2015) noted that correlational research seeks to reveal the magnitude and direction of an association between variables.

2.1.1. Ethics Statement

The University of Nigeria, Nsukka ethical committee approved this study. A consent form was signed by all participants in the sample, informing them of the objectives and procedures of the research and the benefits associated with participation. The participants were assured of data privacy. The American Psychological Association's ethical guidelines were strictly followed.

2.2. Area of the Study

The study was conducted in South East Nigeria. South East Nigeria is made up of five states. Each of these states has one federal university. Two of the five federal universities have economics education units.

2.3. Population and Sample

There were 1,432 undergraduate economics education students in two federal universities in South East Nigeria. A purposeful sampling technique was used to sample first-year students because research shows that academic adjustment problems are common among them. A simple random sampling technique was used to recruit 150 participants from two federal universities in the South East region of Nigeria. These participants were made up of 87 males and 63 females from first-year economics education classes. The age range of these participants was between 18 and 24 years. Most of these students were from the Igbo ethnic group.

2.4. Instrument for Data Collection and Study Procedure

The instruments used for data collection were three questionnaires, including the teacher written feedback questionnaire, the teacher oral feedback questionnaire, and the academic adjustment questionnaire. The questionnaire for teacher-written feedback was adopted from Ermawati (2012). The instrument is made up of 10 items that measure students' perceptions of teachers' written feedback, and it has a 4-point rating scale from 1 (strongly disagree) to 4 (strongly agree). The lowest score is 10, while the highest score is 40. The teacher oral feedback questionnaire was adopted from King et al. (2009) and the instrument is made up of 17 items and is a 4-point rating scale (strongly disagree (1) to strongly agree (4)). The lowest score is 17, while the highest score is 68. Students' academic adjustment questionnaire (AAQ) was adopted from Clinciu and Cazan (2014) and Anderson et al. (2016). The instrument is made up of 27 items. The instrument has 5 response options, ranging from 1 (rarely applies to me) to 5 (always applies to me). The student engagement scale was adopted from Gunuc and Kuzu (2015). There are 59 items in the original instrument. As a result, 29 items related to students' learning engagement were selected. The lowest score is 29 and the highest is 45. The instrument covers cognitive engagement, emotional engagement, and behavioural engagement. The instrument has a 5-point rating scale that ranges from "totally disagree" (1) to "totally agree" (5).

2.5. Data Collection Technique

The researchers visited the sampled school with ethical approval for the project and gatekeeper permission before collecting data from the participants. The data collection process took three weeks.

As a result of the number of questionnaire items, it took each student approximately 25 minutes to fill out and return a copy of the questionnaire. The researcher and two research assistants administered and retrieved the instruments from the participants. One hundred per cent (100%) of copies of instruments administered to the respondents were retrieved from the participants.

2.6. Data Analysis Technique

Respondents' responses were coded using SPSS version 27 and then exported to WarpPLS version 8.0. WarpPLS was chosen because it has the potential to analyse both normally distributed and not normally distributed data concerning partial least squares structural equation modelling (Kock, 2016, 2020). A path diagram will be used to answer research question one, and a path coefficient will be used to answer research question two.

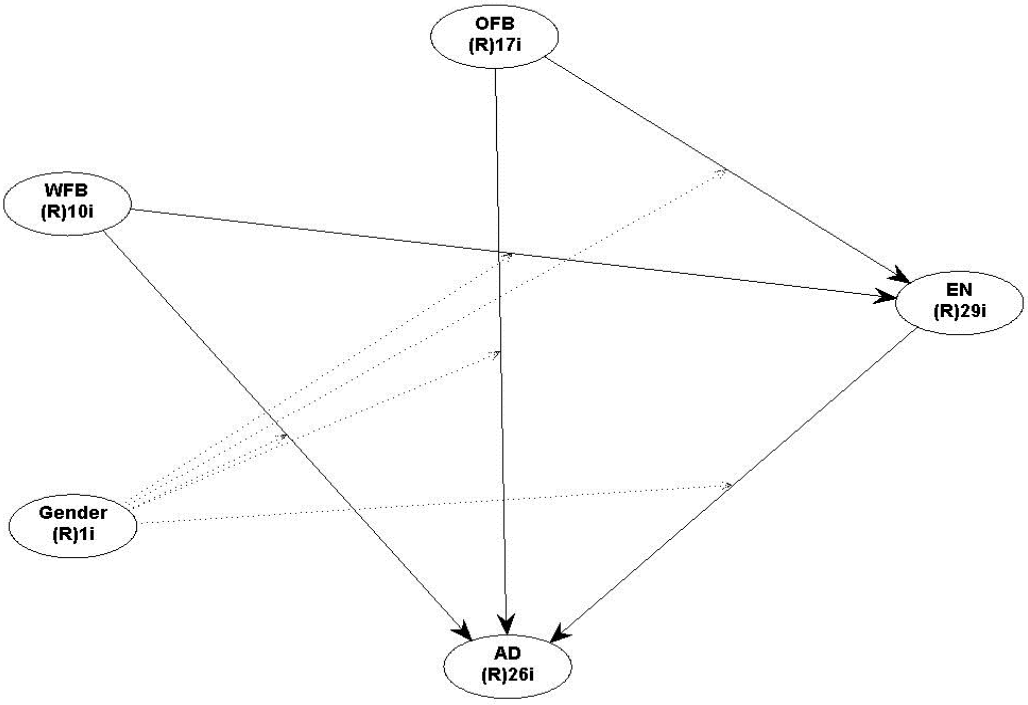

Figure 1: Hypothetical structural model

The hypothetical model shown in Figure 1 illustrates the structural relationship among variables. Two major exogenous variables in the structural model are teachers' written feedback (WFB) and oral feedback (OFB), while the major endogenous variable is academic adjustment (AD). Students' engagement (EN) plays the double role of an endogenous and exogenous variable because it moderates the effects of teachers' written feedback and oral feedback on students' academic adjustment. The main moderating variable in the model is students' gender, which moderates the effects of all the path links in the model, denoted with dotted lines. Therefore, paths with dotted lines indicate moderating effects, while paths with solid lines indicate direct effects of exogenous variables on endogenous variables. The model fit was tested using the average path coefficient (APC), average R-squared (ARS), average adjusted R-squared (AARS), average block VIF (AVIF), average full collinearity VIF (AFVIF), Tenenhaus GoF (GoF), Simpson's paradox ratio (SPR),

R-squared contribution ratio (RSCR), and statistical suppression ratio (SSR) since the data collected are not normally distributed. These are the commonly used model fit tests in the partial least squares structural equation model.

3. Results and Discussion

3.1. Model fit and quality indices

The path model below reveals a good model fit (APC = 0.240, P = 0.001; ARS = 0.888, P = 0.001; AARS = 0.885, P = 0.001) at the $p < 0.001$ level of significance. In addition, other fitness indices were within acceptable ranges (AVIF = 2.735, AFVIF = 4.887, SPR = 1, RSCR = 1.0, SSR = 1.00, NLBCDR = 1). The coefficient of GoF was large (GoF = 1). Hence, there was a significant model fit between the theoretical structural model proposed for the study and the empirically observed model.

3.2. **Research Question 1:** What is the structural model that explains the influence of teachers' feedback on students' academic adjustment in Economics?

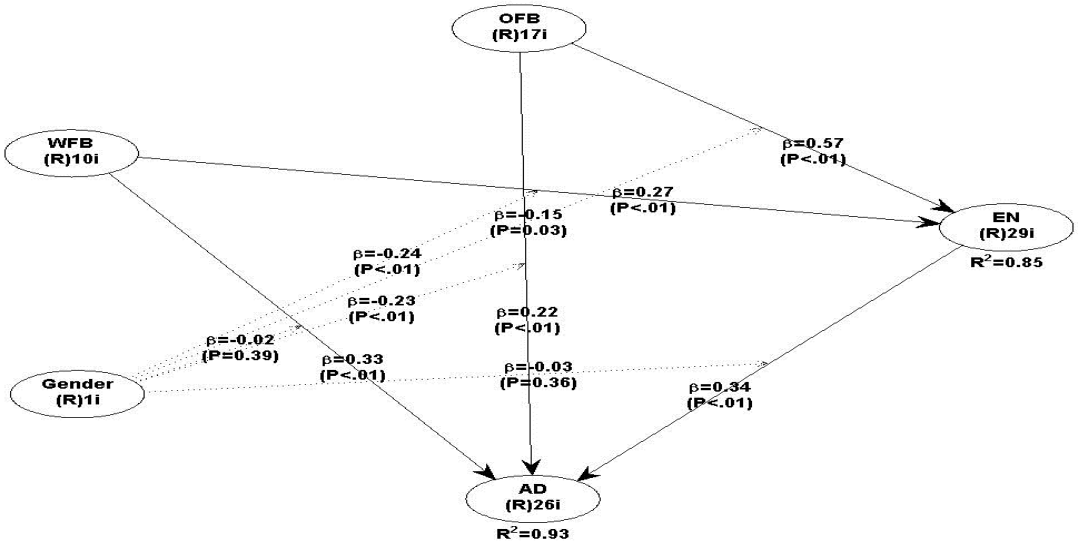

Figure 2: Paths analysis results

Figure 2 shows the results of path analysis after the data were imputed into the WarpPLS. In this structural model, there is a unidirectional flow of effects from the exogenous variables (written feedback, oral feedback, and students' engagement) to the main endogenous variables (academic adjustment). The figure also shows the moderating effects of gender. The multiplier effects of exogenous variables are seen in the model as teachers' written and oral feedback affected students' engagement and had an indirect effect on students' academic adjustment. At the 0.05 level, all paths' coefficients (solid lines) were significant. This structural model showed a unidirectional multiple association among teachers' feedback practices, students' engagement, and academic adjustments, which indicates that the model is recursive. This recursive model shows that teachers' feedback practices explain 85% of the variation in students' engagement. Furthermore, the composite effects of the exogenous variables (teachers' feedback practices and students' engagement) in the model explain 93% of the variation in students' academic adjustment. Therefore, the most meaningful

recursive structural model that explains students' academic adjustment in economics as moderated by students' gender is a model involving teachers' feedback practices and students' engagement.

This study found that the most meaningful recursive structural model that explains students' academic adjustment in economics as moderated by their gender is a model involving teachers' feedback practices and students' engagement. This model revealed the multiplier effects that emanated from the interactions between teachers' feedback practices and students' engagement, which explained 93% of the variations in Economics students' academic adjustments. This means that teachers' feedback practices and students' engagement accounted for 93% of the variation in students' academic adjustment. The reason for this could be attributed to teachers' techniques, methods, and modes of providing oral and written feedback to students, taking into account the moderating effects of students' gender and the extent to which students engage with the feedback. In addition, this study found that teachers' feedback practices are significantly moderated by students' engagement in instructional processes. This means that the extent of the usefulness of teachers' feedback is a function of students' engagement in the feedback provided by teachers concerning students' efforts.

In addition, these results have shown that the magnitude of teachers' feedback practices in and outside the classroom explained 85% of variations in students' engagement in learning economic content. Thus, if teachers' feedback engages students, students' academic adjustment would be high, but if teachers' feedback disengages students, students would have a low academic adjustment. The direction of the relationship in this model is unidirectional, which supports the transitivity assumption of Lewis' counterfactual theory of causation (Lewis, 1973). Lewis theorised that causation is transitive from the main exogenous variables through moderating variables to endogenous variables. In this structural model, teachers' feedback practices affect students' academic advancement directly and indirectly through engagement. The findings of this study align with those of Obiorah et al. (2021) who reported that in a unidirectional path model, students' variables affected their achievement in economics.

3.3. **Research Question 2:** What is the direction and strength of the relationship between teachers' feedback practices and students' academic adjustment as moderated by gender?

Table 1: Paths coefficients

VARIABLES	PATHS COEFFICIENTS	P-VALUE	EFFECT SIZE
DIRECT EFFECTS			
WFB →AD	0.333	0.001*	0.272**
OFB→AD	0.224	0.002*	0.191**
EN→AD	0.341	0.001*	0.288**
WFB→EN	0.272	0.001*	0.194**
OFB→EN	0.567	0.001*	0.444***
GENDER*WFB→AD	-0.023	0.349**	0.016*
GENDER*OFB →AD	-0.230	0.002*	0.147**
Gender*EN→AD	-0.028	0.364**	0.017*
Gender*WFB→EN	-0.236	0.001*	0.148**
Gender*OFB→EN	-0.147	0.032*	0.060*
INDIRECT EFFECTS			
WFB→ENG→AD	0.093	0.051*	0.076*

OFB→ENG→AD	0.194	0.001*	0.165**
Gender* WFB→ENG→AD	-0.081	0.078**	0.057*
Gender* OFB→ENG→AD	-0.050	0.190**	0.032*

Note: * Cohen in Gaskins (2013), effect sizes can be small (0.02), medium (0.15), and large (0.35). Effect size below 0.02 is considered too small for relevancy (no rel.) Path coefficient (* = significant; ** = not significant), Effect size coefficient (* = small; ** = small; *** = large)

Table 1 shows the path coefficients with associated p-values and effect sizes of the direct and indirect effects of teachers' feedback practices, students' engagement, and gender. Teachers' written feedback directly, positively, and significantly affected students' academic adjustment (β =.333, p = 0.001; ή = 0.272), and the magnitude of the effect size was moderate. Teachers' oral feedback directly, positively, and significantly affected students' academic adjustment (β =.224, p < 0.002; ή = 0.191), and the magnitude of the effect size was moderate. Students' engagement directly, positively, and significantly affected students' academic adjustment (β =.341, p = 0.001, ή = 0.288), and an effect size of moderate magnitude was observed. Teachers' written feedback directly, positively, and significantly affected students' academic engagement (β = 0.272, p = 0.001; ή = 0.194), and an effect size of moderate magnitude was observed. Teachers' oral feedback directly, positively, and significantly affected students' academic engagement (β = 0.567, p = 0.001; ή = 0.444), and an effect size of large magnitude was observed.

The relationship between teachers' written feedback and academic adjustment was negative and insignificant as moderated by gender (β = -0.023, p = 0.349; ή = 0.016), and an effect size of small magnitude was observed. The relationship between teachers' oral feedback and academic adjustment was negative and significant as moderated by gender (β = -0.230, p = 0.002; ή = 0.147), and an effect size of moderate magnitude was observed. The relationship between teacher written feedback and academic engagement was negative and insignificant as moderated by gender (β = -0.236; p = 0.001; ή = 0.148), and an effect size of moderate magnitude was observed. The relationship between teachers' oral feedback and academic engagement was negative and significant as moderated by gender (β = -0.147, p = 0.032; ή = 0.060), and the magnitude of the effect size was moderate.

Furthermore, Table 1 also revealed the indirect effect of teachers' written feedback on students' academic adjustment. Teacher's written feedback indirectly, positively, and significantly affected students' academic adjustment through students' engagement (WFB→ENG→AD), (β = 0.093, p = 0.051; ή = 0.076), and the magnitude of the indirect effect was moderate. Teacher's oral feedback indirectly, positively, and significantly affected students' academic adjustment through students' engagement (OFB→ENG→AD), (β = 0.194, p = 0.001; ή = 0.165), and the magnitude of the indirect effect was moderate. Similarly, gender moderated the indirect effects of teachers' written feedback through students' engagement (Gender* WFB→ENG→AD) (β = -0.081, p = 0.078; ή = 0.057), which was negatively insignificant with a moderate effect size. In addition, gender moderated the indirect effects of teachers' oral feedback through students' engagement (Gender* OFB→ENG→AD) (β = -0.050, p = 0.190; ή = 0.032), which was negatively insignificant with a moderate effect size. The negative path coefficients of gender's moderating effect on the interaction of teachers' feedback practices, students' engagement, and academic adjustment show that when the gap between male and female students in terms of academic adjustment decreases, students' adjustment increases.

As a result of the current study, significant decomposition effects of exogenous variables on students' academic adjustment in economics were observed. This means that each of these exogenous variables significantly affected students' academic adjustment in economics. In the model,

students' engagement had the highest direct effect size on academic adjustment, followed by teachers' written feedback. This finding is consistent with Cheng and Liu (2022) who affirmed that students' engagement with teachers' feedback is moderated by language proficiency and that the associations among affective, cognitive, and behavioural engagement are not linear. In addition, this study conforms with the findings of Benraghda et al. (2018) which reported that students' engagement and adjustment to college were found to be moderately correlated. Similarly, teachers' written feedback has been found to produce an abundance of instructions, mostly for poorly performing or "borderline" students (Denison et al., 2016; Nuland et al., 2012). This study corroborates the findings of Siewert (2010) which revealed that written teacher feedback positively affected student performance. This means that students reviewing teachers' comments several times gives them a conceptual direction towards achieving the stipulated objectives. The impact of a written text and the reader's affective responses are essential elements of written feedback (Austen, 2016).

Furthermore, teachers' oral feedback had the highest indirect effect on students' academic adjustment. This means that teachers' oral feedback has a significant role in improving students' adjustment since it provides a means of correcting students' errors or mistakes. Tarigan et al., (2023) found that oral feedback can eliminate students' errors at an early stage and target students with understanding difficulties (Mohammed & Fairz, 2013). The effects of teachers' feedback practices and students' engagement on students' academic adjustment were moderated by students' gender. In light of the negative moderating effects of gender, there seems to be a substantial gap between male and female students' perceptions of oral and written feedback, engagement, and academic adjustment. In addition, this suggests that when the gap between male and female students decreases, there is an increase in the strength of the relationship between teachers' feedback, student engagement, and academic adjustment. This study's findings are following Tomazin et al. (2023) which revealed that female students scored higher than male students, irrespective of feedback conditions. In addition, in Viet (2021), students' gender was significantly associated with their personal and emotional adjustment. Ali et al. (2018) found that female students had an average academic adjustment, while male students had better academic adjustment. These previous studies have shown that differences exist between male and female students' academic adjustment, which indicates that the gender variable is a major moderator concerning students' academic adjustment.

There are several educational implications to be drawn from this study for teachers, school administrators, and students. This study revealed that teachers' oral and written feedback has direct and indirect effects on students' academic adjustment when moderated by gender. The feedback practices of teachers are crucial factors contributing to the successful implementation of economics curriculum content in the classroom. Therefore, economics teachers should ensure that their feedback is gender-neutral and facilitates students' learning activities. Also, this study found that students' engagement directly affected students' academic adjustment and transmitted the indirect effects of teachers' feedback on students' academic adjustment in Economics. Accordingly, despite the volume of feedback teachers provide, students' engagement in that feedback is crucial to academic adjustment. As a result, students' engagement with teachers' feedback determines its impact on their academic adjustment.

This study is crucial because it established a structural model that explained students' academic adjustment in economics using teachers' feedback practices and students' engagement when moderated by students' gender in the context of higher education. Teachers of higher education are expected to use the results of this study to address challenges related to the implementation of the

curriculum. There has never been a study of this kind that explored the multiple interaction effects of student gender on the association between teachers' feedback practices, students' engagement, and academic adjustment.

Despite the strengths of the study, there are inherent limitations to its design and the instrument used for the study. First, a questionnaire was used to collect data for this study. Hence, the study was limited to quantitative data, thereby excluding the lived experiences of the participants. Second, the path diagram structure is based on the author's knowledge of empirical reviews. Due to this, any change in the direction of the path diagram will result in a different outcome. Third, the author used a small sample for this study, which may limit the generalisation of its findings. In light of the limitations of this study, future researchers should consider combining qualitative and quantitative research methods to examine the influence of teachers' feedback practices on students' academic adjustment as moderated by other psychosocial variables. Future researchers should consider a larger sample size.

4. Conclusion

This research examined the potential influence of a student's gender on the relationship between teachers' feedback practices, student engagement, and academic adjustment. The feedback provided by teachers is crucial to the facilitation of instructional processes, as it promotes student adjustment and contributes to their academic adjustment, regardless of their gender. This study developed a structural recursive path model that explained the composed and decomposed effects of teachers' feedback practices, students' engagement, and academic adjustment as moderated by gender. The significance of students' academic engagement was demonstrated in the model as it transmitted a substantial effect on students' academic adjustment and moderated the effects of teachers' feedback practices. This study revealed that there is a strong moderating effect of gender on the relationship between teachers' feedback practices, students' engagement, and academic adjustment of students. This study concludes that the most meaningful model that explains first-year students' academic adjustment in economics in higher education is a recursive model that involves teachers' feedback practices and students' engagement in learning activities. This study recommends that to promote the academic adjustment of first-year economics students, teachers' feedback practices should be designed to stimulate female and male students' engagement in the academic process.

Acknowledgements

We appreciate the administration of the sampled schools for granting access for this to be conducted.

Conflict of Interest

No conflict of Interest between authors.

Author Contributions

The study's conceptualization, investigation, review of the literature method, and data analysis were done by AAN and VD.

Data Availability Statement

The dataset used for this study is available on request. For further inquiries can consult the authors.

Funding Information

This study was not funded by any organization.

References

AbuSeileek, A., & Abualshar, A. (2014). Using peer computer-mediated corrective feedback to support EFL learners' writing. *Language Learning & Technology Journal 18*(1), 76–95. http://llt.msu.edu/issues/february2014/abuseileekabualshar.pdf

Ahmad, I., Smetana, J. G., & Klimstra, T. (2015). Maternal monitoring, adolescent disclosure, and adolescent adjustment among Palestinian refugee youth in Jordan. *Journal of Research on Adolescence*, *25*(3), 403–411.

Ali, A., Ahmad, M., & Khan, S. (2018). Social and academic adjustment of the university students. *Global Social Sciences Review*, *3*(3), 378–394. https://doi.org/10.31703/gssr.2018(III-III).21

Alqassab, M., Strijbos, J.-W., & Ufer, S. (2018). Training peer-feedback skills on geometric construction tasks: Role of domain knowledge and peer-feedback levels. *European Journal of Psychology of Education*, *33*(1), 11–30. https://doi.org/10.1007/s10212-017-0342-0

Amedu, A. N. (2021). *Development of structural model for explaining students' engagement and achievement in economics using lecturers' feedback and students' psychological variables in South East Nigeria* [Unpublished doctoral thesis]. University of Nigeria.

Anderson, J. R., Guan, Y., & Koc, Y. (2016). *The academic adjustment scale: Measuring the adjustment of permanent resident or sojourner students*. https://doi.org/10.1016/j.ijintrel.2016.07.006

Austen, L., & Malone, C. (2018). What students want in written feedback; praise clarity and precise individual commentary. *Practitioner Research in Higher Educational Journal, 11*(1), 47-58.

Austen, L. (2016). Balancing academic gatekeeping and interpersonal positioning. A qualitative analysis of written feedback to undergraduates' practitioner research in higher education, *Journal of Educational Research* 10(2), 67–81. http://194.81.189.19/ojs/index.php/prhe

Benraghda, A., Goudih, Z., & Abdallah, S. S. (2018). Student engagement and adjustment to college among undergraduate students. *Library Philosophy and Practice (e-journal), 1889.* http://digitalcommons.unl.edu/libphilprac/1889

Bitchener, J., & Storch, N. (2016). *Written corrective feedback for L2 development*. 96 Multilingual Matters.

Briggs, A. (2015). Ten ways to overcome barriers to student engagement online. *Online Learning Consortium*. http://onlinelearningconsortium.org/news_item/tenways-overcome-barriers-student-engagement-online/

Carless, D., & Boud, D. (2018). The development of student feedback literacy: Enabling uptake of feedback. *Assessment & Evaluation in Higher Education*, *43*(8), 1315–1325. https://doi.org/10.1080/02602938.2018.1463354

Chambers Schuldt, L. (2019). Feedback in action: Examining teachers' oral feedback to elementary writers. *Teaching and Teacher Education*, *83*, 64–76.

https://doi.org/10.1016/j.tate.2019.03.020

Cheng, X., & Liu, Y. (2022). Student engagement with teacher written feedback: Insights from low-proficiency and high-proficiency L2 learners. *System, 109*, 102880. https://doi.org/10.1016/j.system.2022.102880

Clinciu, A. I., & Cazan, A.-M. (2014). Academic adjustment questionnaire for the university students. *Procedia - Social and Behavioral Sciences, 127*, 655–660. https://doi.org/10.1016/j.sbspro.2014.03.330

Conner, T. (2011). Academic engagement ratings and instructional preferences: Comparing behavioral, cognitive, and emotional engagement among three school-age student cohorts. *Review of Higher Education and Self-Learning*, 4 (13), 52–62.

Denison, A., Bate, E., & Thompson, J. (2016). Tablet versus paper marking in assessment: Feedback matters. *Perspect Med Educ., 5*, 108–13. https://doi.org/10.1007/s40037-016-0262-8

Dressler, R., Chu, M.-W., Crossman, K., & Hilman, B. (2019). Quantity and quality of uptake: Examining surface and meaning-level feedback provided by peers and an instructor in a graduate research course. *Assessing Writing, 39*, 14–24. https://doi.org/10.1016/j.asw.2018.11.001

Ermawati, E. (2012). *Teacher's feedback on students' descriptive text writing and students' attitude toward the feedback in class 8a at SMPN 3 Kencong Jember in the 2011/2012 academic year* [Unpublished master's thesis]. Jember University.

Gaskins, L. E., (2013). The effect of Information and Communications Technology (ICT) diffusion on corruption and transparency (A Global Study). *Theses and Dissertations, 19.* https://rio.tamiu.edu/etds/19

Gamlem, S. M., & Munthe, E. (2014). Mapping the quality of feedback to support students' learning in lower secondary classrooms. *Cambridge Journal of Education, 44*(1), 75–92. https://doi.org/10.1080/0305764X.2013.855171

Gunuc, S., & Kuzu, A. (2015). Student engagement scale: Development, reliability and validity. *Assessment & Evaluation in Higher Education, 40*(4), 587–610. https://doi.org/10.1080/02602938.2014.938019

Hoff, J., & Lopus, J. S. (2014). *Does student engagement affect student achievement in high school economics classes?* Paper presented at the annual meetings of the Allied Social Science Association, Philadelphia.

Inman, M. (2017). Behind the stigma: The impact of gender and college adjustment on attitudes towards mental health disorders. *Honors Theses, 116*. https://ecommons.udayton.edu/uhp_theses/116

Irfan, W., Naz, K., Jaweed, H., & Ali Khan Bhatti, A. (2020). *The role of psychological capital in academic adjustment among university students* [MPRA Paper]. https://mpra.ub.uni-muenchen.de/104615/

King, P. E., Schrodt, P., & Weisel, J. J. (2009). The instructional feedback orientation scale: Conceptualizing and validating a new measure for assessing perceptions of instructional feedback. *Communication Education, 58*(2), 235–261. https://doi.org/10.1080/03634520802515705

Kock, N. (2016). Non-normality propagation among latent variables and indicators in PLS-SEM simulations. *Journal of Modern Applied Statistical Methods, 15*(1), 299–315. https://doi.org/10.22237/jmasm/1462076100

Kock, N. (2020). *WarpPLS User Manual: Version 7.0*. ScriptWarp Systems.

Koltovskaia, S. (2020). Student engagement with automated written corrective feedback (AWCF) provided by Grammarly: A multiple case study. *Assessing Writing*, *44*, 100450. https://doi.org/10.1016/j.asw.2020.100450

Kraft, M., & Dougherty, S. (2013). The effect of lecturer-family communication on student engagement: Evidence from a randomized field experiment. *Journal of Research on Educational Effectiveness*, *6*, 199-222.

Lee, I. (2020). Utility of focused/comprehensive written corrective feedback research for authentic L2 writing classrooms. *Journal of Second Language Writing*, *49*, 100734. https://doi.org/10.1016/j.jslw.2020.100734

Lewis, D. (1973). *Counterfactuals.* Blackwell.

Li, S., & Vuono, A. (2019). Twenty-five years of research on oral and written corrective feedback in the system. *System*, *84*, 93–109. https://doi.org/10.1016/j.system.2019.05.006

Lipnevich, A. A., & Smith, J. K. (2022). Student–feedback interaction model: Revised. *Studies in Educational Evaluation*, *75*, 101208. https://doi.org/10.1016/j.stueduc.2022.101208

Mohammed, M. A. A., & Faiz, S. A. (2013). On the role of oral feedback in ESL postgraduate thesis writing supervision. *International Journal of Education and Research*, 2201–6740.

Mohanraj, R. L. (2005). A study of perceived family environment in relation to adjustment and academic achievement. *Journal of the Indian Academy of Applied Psychology*, *31*(1–2), 13–18.

Mudhovozi, P. (2012). Social and academic adjustment of first-year university students. *Journal of Social Sciences*, *33*(2), 251–259. https://doi.org/10.1080/09718923.2012.11893103

Nicol, D. (2021). The power of internal feedback: Exploiting natural comparison processes. *Assessment & Evaluation in Higher Education*, *46*(5), 756–778. https://doi.org/10.1080/02602938.2020.1823314

Nidhi, M., & Kermane, M. (2015). Adjustment problems of college students in relation to gender, socioeconomic status and academic achievement. *International Journal of Current Research, 7*(4), 14574-14578.

Nuland, V. M, Noortgate, V. W., & Vleuten, V. C. (2012). Optimizing the utility of communication OSCEs: Omit station-specific checklists and provide students with narrative feedback. *Patient Educ Couns., 88*, 106–12. https://doi.org/10.1016/j.pec.2011.12.015

Nworgu, B. G. (2015). *Educational research. Basic issues and methodology* (3rd ed.). University Trust Publishers.

Oche, E. S. (2012). Assessing the effect of prompt feedback as a motivational strategy on students' achievement in secondary school mathematics. *International Research Journals.* http://www.interesjournals.org/ER

Obiorah, J. N., Eneogu, N. D., Nji, I. A., Ezeocha, I. G., Ekwesaranna, F., & Nwabufo, C. (2021). *Path analysis of the influence of students' variables and school location on students' academic achievement in economics*. https://www.semanticscholar.org/paper/Path-Analysis-of-the-Influence-of-Students-and-on-Obiorah-Eneogu/2634b30822ed1e6cd418e81342d754245b806880

Palfreyman, S. (2013). *The relationship between student engagement with feedback and lecturer and students views of teaching, learning and assessment*. A master project of Adult Education, Massey University.

Ruegg, R. (2015). The relative effects of peer and teacher feedback on improvement in EFL students' writing ability. *Linguistics and Education*, *29*, 73–82. https://doi.org/10.1016/j.linged.2014.12.001

Siewert, L. (2010). The effects of written teacher feedback on the academic achievement of fifth-grade students with learning challenges. *Preventing School Failure: Alternative Education for Children and Youth*. https://doi.org/10.1080/10459880903286771

Tarigan, K., Stevani, M., Ginting, F., Prayuda, M., Lumbanraja, B., & Sari, D. (2023). Oral corrective feedback and error analysis: Indonesian teachers' beliefs to improve speaking skill. *World Journal of English Language*, *13*, 140–150. https://doi.org/10.5430/wjel.v13n6p140

Tian, L., & Zhou, Y. (2020). Learner engagement with automated feedback, peer feedback and teacher feedback in an online EFL writing context. *System*, *91*, 102247. https://doi.org/10.1016/j.system.2020.102247

Tomazin, L., Lipnevich, A. A., & Lopera-Oquendo, C. (2023). Teacher feedback vs. annotated exemplars: Examining the effects on middle school students' writing performance. *Studies in Educational Evaluation*, *78*, 101262. https://doi.org/10.1016/j.stueduc.2023.101262

Tripathy, D., & Sahu, B. (2018). *Gender: Its effect on the adjustment level of high school students*. https://doi.org/10.7537/marsnys110218.12

Trowler, V. (2010). *Student engagement literature review.* https://www.heacademy.ac.uk/sites/default/files/studentengagementliteraturereview_1 .pdf

Viet, V. (2021). Student's adjustment to university and its relation to gender, residence and family factors. *Kasetsart Journal of Social Sciences*, *42*, 81–88. https://doi.org/10.34044/j.kjss.2021.42.1.13

Winga, M. A., Agak, J. O., & Ayere, B. (2011). The relationship among school adjustment, gender and academic achievement amongst secondary school students in Kisumu district Kenya. *Journal of Emerging Trends in Educational Research and Policy Studies, 2*(6), 493–497.

Yadak, S. M. A. (2017). The impact of the perceived self-efficacy on the academic adjustment among Qassim University undergraduates. *Open Journal of Social Sciences*, *5*(1), Art. 1. https://doi.org/10.4236/jss.2017.51012

Yao, Y., Guo, N. S., Li, C., & McCampbell, D. (2021). How university EFL writers' beliefs in writing ability impact their perceptions of peer assessment: Perspectives from implicit theories of intelligence. *Assessment & Evaluation in Higher Education, 46*(1), 151–167. https://doi.org/10.1080/02602938.2020.1750559

Yau, H. K., & Cheng, F. A. (2014). An empirical study into gender differences in the relationships among academic, social and psychological adjustments of university support. *Journal of Further and Higher Education, 38*(2), 268–282. https://doi.org/10.1080/0309877X.2012.722197

Yu, S., Zhang, Y., Zheng, Y., Yuan, K., & Zhang, L. (2019). Understanding student engagement with peer feedback on master's theses: A Macau study. *Assessment & Evaluation in Higher Education, 44*(1), 50–65. https://doi.org/10.1080/02602938.2018.1467879

Zhang, Z. (2020). Engaging with automated writing evaluation (AWE) feedback on L2 writing: Student perceptions and revisions. *Assessing Writing*, *43*, 100439. https://doi.org/10.1016/j.asw.2019.100439

Publisher: Department of Home Economics and Hospitality Management Education, University of Nigeria, Nsukka 41001, Nigeria