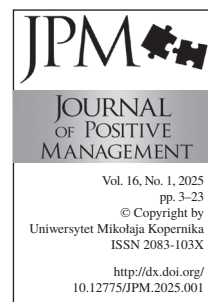


UNIVERSITY EDUCATION QUALITY AND ACADEMIC CITIZENSHIP BEHAVIOUR: THE MEDIATING ROLE OF STUDENT LOYALTY

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Abstract

Purpose: This study investigates the relationship between university education quality and student loyalty and academic citizenship behaviours in Polish public universities, addressing a critical gap by viewing students as essential academic community members rather than just customers.

Design/methodology/approach: A quantitative approach using structural equation modelling with partial least squares was employed. Survey data were collected from 165 business students across various academic years at a Polish public university. The study utilised established scales, including the higher education performance scale, organisational citizenship behaviour measures, and student loyalty instruments, drawing on Expectancy-Disconfirmation Theory and Social Exchange Theory as theoretical foundations.

Findings: Results demonstrate substantial positive relationships between perceived education quality and both student loyalty and academic citizenship behaviours. Student loyalty serves as a significant mediator in the relationship between university education quality and academic citizenship behaviours. High-quality educational experiences directly foster student engagement in voluntary community-building activities while strengthening institutional loyalty.

Implications/limitations: Findings highlight the strategic significance of quality-oriented university strategies in fostering student loyalty and encouraging academic citizenship behaviours. Institutions may benefit from recognising students as valued community members rather than customers. Limitations include focus on business students at one Polish university, limiting generalisability across disciplines and cultural contexts.

Originality/value: This research uniquely examines students' dual role as both customers and community members, providing new insights into how education quality influences citizenship behaviour through loyalty mediation in higher education.

Keywords: university education quality, student loyalty, academic citizenship behaviour, business students, structural equation modelling

Paper type: Research paper

1. Introduction

Global competition has made attracting and retaining students a strategic imperative (Angell et al., 2008). Strategies to keep existing or loyal consumers are more cost-effective than acquiring new customers, highlighting the importance of fostering student loyalty (SL) (Zeithaml et al., 2018). SL is particularly crucial as it reflects overall satisfaction, enhances institutional reputation, fosters long-term relationships, and supports strategic planning and continuous improvement, giving universities a competitive edge (Hennig-Thurau et al., 2001; Yusof et al., 2019). Consequently, delivering high-quality educational services has emerged as a central focus for higher education institutions (Hwang & Choi, 2019). Existing research on service quality in higher education primarily examines its relationship with student satisfaction and loyalty (Ali et al., 2016; Alves & Raposo, 2007; Annamdevula & Bellamkonda, 2016; Brown & Mazzarol, 2009; Hwang & Choi, 2019; Lazibat et al., 2014; Wong & Chapman, 2023). However, a gap still exists regarding students' perceptions of service quality in higher education (Hwang & Choi, 2019; Narang, 2012; Sultan & Wong, 2013); while one research explored the relationship between service quality and customer citizenship behaviour, it ignored the mediating role of SL (Sharif & Sidi Lemine, 2021). Addressing this gap, this study investigates the link between university education quality (UEQ) and academic citizenship behaviour (ACB), with particular attention to the mediating role of SL. Although earlier studies frequently see students as merely customers in the context of higher education (Nagy & Marzouk, 2018; Sharif & Sidi Lemine, 2021), this perspective fails to capture the distinct and active role of students as participants in the academic community. Unlike traditional services, education demands a collaborative effort between educators and students, transcending the simplistic "service provider-customer" dynamic (Hennig-Thurau et al., 2001). To better reflect this collaborative nature, our study uses the Organisational Citizenship Behaviour (OCB) scale tailored for academic settings (Allison et al., 2001; Khaola, 2014; LeBlanc, 2014). ACB emerges as a critical competency contributing to the professional success of students (Allison et al., 2001). Understanding factors motivating these behaviours helps institutions enhance student development, enrich academic communities, and prepare graduates for employer expectations (Kernodle & Noble, 2013; LeBlanc, 2014). Business schools are rethinking quality improvement to boost international rankings and global competitiveness (Vigier & Bryant, 2025). We therefore focus on business students as a relevant population for understanding skill development fostering professional advancement.

Drawing on data from Poland, we integrate Expectancy-Disconfirmation Theory (Fornell et al., 1996) and Social Exchange Theory (Blau, 2017; Gouldner, 1960) to address two key questions according to the developed research model (see Figure 1):

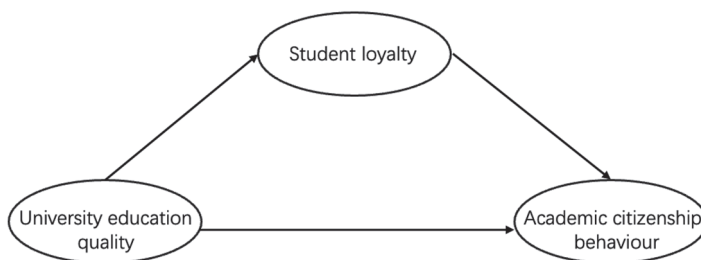


Figure 1. Research model

Q1. To what extent does UEQ influence ACB?

Q2. To what extent does SL mediate the relationship between UEQ and ACB?

Although the positive impact of education quality on SL is well documented in educational research (Annamdevula & Bellamkonda, 2016; Zeithaml et al., 1996), and the relationship between loyalty and citizenship behaviours (e.g., altruism, civic virtue) has been established in consumer and employee contexts (Bove et al., 2009; Zoghbi-Manrique-de-Lara et al., 2014), research on the higher education setting has so far approached this topic by treating students merely as customers (Nagy & Marzouk, 2018). No known study examined SL's mediating effect between UEQ and ACB, while viewing students as active academic community members.

To address this gap, this study investigates how SL mediates the relationship between UEQ and ACB, considering students as both customers and academic community members. This offers new insights on the interplay between education quality and citizenship behaviour in higher education. The research explores how education quality enhances student participation in citizenship behaviours crucial for individual achievement and the institutional environment.

2. Theoretical background and hypothesis

2.1. University Education Quality

Service quality in higher education can be understood through a perspective that recognises both the evolving nature of quality definitions and the corresponding measurement approaches. Drawing on expectancy-disconfirmation theory (Fornell et al., 1996), service quality measurement has increasingly focused on customers' perceptions, whereby loyalty emerges as a response to perceived value, shaped by customers' expectations and the perceived quality of the delivered service.

In higher education, service quality significantly influences critical outcomes, including student satisfaction and loyalty (Ali et al., 2016; De Jager & Gbadamosi, 2010; Hennig-Thurau et al., 2001; Hwang & Choi, 2019; Paswan & Ganesh, 2009;

Prakash, 2021). While delivering superior service quality is vital for institutional success (Aly & Akpovi, 2001), defining service quality in this context remains debatable (Becket & Brookes, 2006). Such an approach aligns with a customer-led strategy, positioning students as customers of the educational service exchange (Owlia & Aspinwall, 1996). However, adopting a customer-oriented lens remains a matter of debate.

While some scholars argued that conceptualising students as customers is unsuitable for capturing the educational experience's unique nature (Hennig-Thurau et al., 2001; Svensson & Wood, 2007), many studies have successfully adopted and applied this framework in higher education (Ali et al., 2016; Angell et al., 2008; Hwang & Choi, 2019; Narang, 2012; Sharif & Sidi Lemine, 2021; Sultan & Wong, 2013). We contend that students in higher education simultaneously exhibit characteristics of both customers and citizens within the academic community (Svensson & Wood, 2007). Recognising students as customers enables a more meaningful assessment of service quality, acknowledging that students interact with a wide range of university services and resources. This broader viewpoint captures students' holistic involvement and informs service improvement strategies (Angell et al., 2008). However, educational exchange requires a collaborative effort between educators and students which transcends a simple, transactional "service provider-customer" model (Budd, 2017; Hennig-Thurau et al., 2001; Svensson & Wood, 2007). Directly applying a supplier-recipient business model to the university undermines the master-disciple relationship (Hanken, 2011). One must be very careful in this matter not to undermine the boundaries that must be set in this relationship. The learning process depends on both teacher involvement and learner engagement (Hennig-Thurau et al., 2001). The more a student is involved in the course delivered by the lecturer, the greater the knowledge, skills and competencies he acquires.

Cheng & Tam (1997) emphasise that educational quality is inherently "vague" and "controversial," requiring a multidimensional approach. While stakeholders hold diverse views on quality, students, as primary stakeholders, provide reliable insights through their educational experiences (Ali et al., 2016; Jancey & Burns, 2013).

We focus our study on the university education quality, the educational services directly influencing student development and learning, moving beyond generalised "perceived service quality." This student-centred approach captures contextualised experiences that reflect quality in higher education (Abdullah, 2006; Sultan & Wong, 2013; Yeo & Li, 2014). Quality emerges from the interplay between institutional offerings and students' evolving expectations, ultimately guiding strategies that promote SL and meaningful educational outcomes.

Acknowledging students as both customers and academic community members enables institutions to better understand educational service quality.

This student-centred approach informs strategies enhancing educational value and satisfaction (Abdullah, 2006; Sultan & Wong, 2013). Quality emerges as a dynamic concept shaped by student expectations and institutional offerings, providing comprehensive indicators that direct improvements fostering engagement, loyalty, and institutional success.

2.2. University Education Quality and Academic Citizenship Behaviour

In the context of higher education, ACB, reflected in students' voluntary and extra-role activities that contribute to the academic community, can be understood through the lens of social exchange and cognitive consistency theories. Organ (1988) states that OCB is a multi-dimensional concept consisting of five dimensions: altruism, civic virtue, conscientiousness, courtesy, and sportsmanship. Allison et al. (2001) demonstrated these behaviours in academic contexts of student: altruism (e.g. assisting others with academic tasks), courtesy (e.g. informing team members or lecturers about absences), civic virtue (e.g. participating in university activities and non-mandatory meetings), sportsmanship (e.g. abstaining from expressing dissatisfaction with instructor criticism or insufficient peer contributions), and conscientiousness (e.g. attending courses, submitting work punctually, and engaging in discussions).

Social exchange theory (Blau, 2017) suggests that when organisations, such as universities, treat their members positively and fairly, students reciprocate with behaviours beyond formal responsibilities. When students perceive high-quality educational services, they may develop obligation and loyalty that prompts participation in voluntary community-building activities. Conversely, perceiving unfair exchanges diminishes willingness to engage beyond minimum requirements (Ahmadi et al., 2010).

Cognitive consistency theory (Heider, 1946) further complements this view by highlighting that individuals strive for psychological harmony between their beliefs and actions. When students perceive positive educational quality, this encourages corresponding actions, offering feedback, supporting initiatives, or acting as active community members. Research in organisational and customer contexts confirms these dynamics: employees observing positive organisational attributes exhibit extra-role behaviours (Fu et al., 2014), and customers perceiving high service quality support service providers (Aljarah & Alrawashdeh, 2021; Nguyen et al., 2014).

While these relationships have been explored among employees and customers, higher education literature remains limited. This gap is critical, as students represent a distinct stakeholder group whose role lies somewhere between a customer and an engaged community member. When experiencing high-quality education, students reciprocate with behaviours benefiting the academic community (Paswan & Ganesh, 2009). Yet, to our knowledge, only one

study has investigated the relationship between service quality and citizenship behaviours, considering students merely as customers (Sharif & Sidi Lemine, 2021). The direct relationship between UEQ and ACB by considering students as customers and community members remains largely unexamined.

This study seeks to address this gap by empirically examining the influence of UEQ on ACB. By integrating social exchange theory and cognitive consistency theory into our conceptual framework, we aim to shed light on how perceptions of educational quality can foster student actions that go beyond conventional academic obligations.

Hence, we hypothesise that:

H1: There is a positive relationship between UEQ and ACB.

2.3 Student Loyalty

SL in higher education comprises both attitudinal and behavioural dimensions (Hennig-Thurau et al., 2001). The attitudinal component includes cognitive, affective, and conative elements, while the behavioural component is reflected in the decisions students make regarding their ongoing engagement with the institution (Helgesen & Nettet, 2007). Loyalty extends beyond current students to graduates who maintain positive connections with their alma mater, contributing to reputation, enrolling in further courses, or recommending the university (Helgesen & Nettet, 2007). Loyal students actively contribute to improving teaching quality and enhancing the learning environment (Rodie & Kleine, 2000).

Integrating expectancy-disconfirmation theory (Fornell et al., 1996), loyalty emerges in response to perceived value, an interplay between perceived quality and customer expectations. Thus, service quality serves as an antecedent to loyalty. Empirical research in marketing and management domains demonstrates the positive link between service quality and both attitudinal and behavioural loyalty (Boonlertvanich, 2019; Dick & Basu, 1994; Oliver, 1999; Rojas-Méndez et al., 2009). Loyal customers tend to evaluate their entire service experience more favourably (Shankar et al., 2003), and positive appraisal forms a foundation for sustaining loyalty (Picón et al., 2014). The positive correlation between dimensions of service quality and customer loyalty has been proved by Bloemer et al. (1999).

Extending these insights to higher education, a large amount of literature indicates that educational service quality predicts SL (Ali et al., 2016; Annamdevula & Bellamkonda, 2016; Helgesen & Nettet, 2007; Pinna et al., 2023; Rojas-Méndez et al., 2009; Subrahmanyam, 2017; Zeithaml et al., 1996). By achieving high educational quality standards, universities foster SL. Hence, we hypothesise that:

H2: There is a positive relationship between UEQ and SL.

Studies on employees and customers have explored the link between loyalty and citizenship behaviours, indicating that loyalty prompts voluntary actions benefiting organisations or their broader communities (Anaza & Zhao, 2013; Bartikowski & Walsh, 2011; Bove et al., 2009; Zoghbi-Manrique-de-Lara et al., 2014). Loyalty encourages constructive feedback, recommendations, and cooperation—forms of citizenship behaviour improving organisational outcomes.

In the higher education environment, Nagy & Marzouk (2018) found a significant relationship between SL and citizenship behaviour when considering students as customers. Our study differs by considering students as academic community members and using a five-dimensional organisational citizenship behaviour scale.

Hence, we hypothesise that:

H3: There is a positive relationship between SL and ACB.

Some scholars have highlighted the potential for loyalty to act as a mediating mechanism, bridging perceptions of customer service quality and the emergence of citizenship behaviours (Sharif & Sidi Lemine, 2021). To our knowledge, no previous study has examined SL as a mediator between UEQ and ACB. This mediating role may provide deeper insights into how quality educational experiences promote students' active community participation.

Hence, we hypothesise that:

H4: SL mediates the relationship between UEQ and ACB.

Through these hypotheses, we advance the understanding of how UEQ, SL, and ACB interplay within the higher education environment, moving beyond traditional customer-centric models to consider students as both beneficiaries and active members in the higher education environment.

3. Methodology

3.1. Data Collection

This study used a quantitative research approach through a questionnaire survey to empirically test the proposed theoretical model and hypotheses. The survey was conducted in Poland in October 2023, and data were collected at various points in time, focusing on 2nd to 4th-year business students who had at least a year of experience with university education quality. Data were collected through computer-assisted web interviewing (CAWI) using the Google Forms platform. To ensure broad accessibility within the target population, survey invitations were distributed via email, and professors teaching classes were asked to invite their students to participate. After being checked for consistency and completeness, 165 of the 198 questionnaires that were collected were considered valid. The sample size was considered sufficient for the planned statistical analyses. To ensure the quality of the study, the sample size was determined following the ten times rule

suggested by Hair et al. (2011), which specifies that the minimum sample size for a PLS model should be ten times the largest number of structural paths directed at a single latent construct. The sample of 165 respondents significantly exceeds this threshold.

3.2. Sample Characteristics

The survey was completed by business students from various majors at a Polish public university from various academic years at both undergraduate and graduate levels. They evaluated their overall experiences with the university's educational quality throughout their time at the institution.

The sample comprised 64.8% female students, 34.5% male, and 0.6% unspecified gender. Students were predominantly second-year (50.3%), third-year (42.4%), and fourth-year (7.3%). The sample included 73.9% undergraduates and 26.1% postgraduates, with 78.2% studying full-time. Most participants were from Poland (92.7%), with smaller representations from Ukraine (3%) and other countries (each $\leq 1.2\%$).

3.3 Measures

This study evaluated UEQ, ACB, and SL as reflective latent variables using both multidimensional and unidimensional scales from relevant literature. Respondents rated items on a seven-point Likert-type scale (1= "strongly disagree" to 7= "strongly agree"), with higher scores indicating greater agreement. Survey instruments were translated from English to Polish to preserve meaning for respondents.

The UEQ was assessed using the 20-item Higher Education Performance Scale (HEdPERF) (Abdullah, 2006) adapted by Sharif & Sidi Lemine (2021) measuring four dimensions: academic, reputation, non-academic, and access aspects. SL was measured using a 4-item scale developed by Annamdevula & Bellamkonda (2016). ACB was assessed using Allison et al.'s (2001) 10-item organisational citizenship behaviour scale measuring five dimensions: altruism, courtesy, civic virtue, sportsmanship, and conscientiousness.

Structural equation modelling (SEM) with partial least squares (PLS) regression was used to analyse the data through a two-step process including first- and second-order analyses. PLS was selected for its flexibility with non-normally distributed data (Fornell & Bookstein, 1982) and effectiveness with many indicators (Haenlein & Kaplan, 2004; Hair et al., 2011) and smaller sample sizes (Chin & Newsted, 1999; Hair et al., 2017; Wold, 1985). As at least ten indicators were present in two of the constructs in our examination. To examine the data, we employed WarpPLS® version 8.0 (Kock, 2022).

3.4. Analysis

We employed a reflective-reflective type second-order hierarchical latent variable model, where first-order components determined by reflective factors serve as the basis for second-order components (Becker et al., 2012; Hair et al., 2018; Sarstedt et al., 2019). The standard two-stage modelling approach was applied, first analysing the measurement model (establishing reliability and validity) and then the structural model (explaining interrelations) (Hair et al., 2011; Henseler et al., 2016; Kock, 2022). For higher-order constructs, we adopted a two-step approach. First, we estimated the first-order constructs for UEQ, ACB, and SL and saved the latent variable scores for each dimension. Second, we used these saved scores as reflective indicators for the higher-order constructs of UEQ and ACB.

4. Results

4.1. Measurement Model—Assessment of First-Order Reflective Constructs

We assessed the suitability of first-order constructs following Hair et al. (2017) guidelines for evaluating internal consistency reliability, convergent validity, and discriminant validity. Internal consistency reliability was assessed utilising Cronbach's alpha (CA) and composite reliability (CR) coefficients. In exploratory research, a satisfactory CR and CA should be $\alpha > 0.60$ (Hair et al., 2017; Kock, 2022; Nunnally, 1994). All coefficients except two exceeded the 0.60 threshold. Two ACB dimensions (sportsmanship and conscientiousness) had CA scores below 0.60 and were excluded, consistent with Khaola (2014) findings. All indicators show satisfactory scores according to CR. Convergent validity was assessed using factor loadings. Two criteria are advised for establishing that a measurement model shows appropriate convergent validity: All factor loadings meet the requirement of statistical significance ($P \leq 0.05$), and the loadings must be ≥ 0.50 Hair et al. (2019). Hair et al. (2017) state that values in the range of 0.40 to 0.70 are the recommended standards for outer loadings. As shown in Table 1, all items loaded were above the recommended minimum cut-off of 0.50 (Hair et al., 2019; Hulland, 1999). Researchers must assess the Average Variance Extracted (AVE) for convergent validity. According to Fornell & Larcker (1981), an AVE value ≥ 0.50 indicates adequate convergent validity. All AVE values satisfied this requirement (see Table 1).

Discriminant validity was assessed via AVE and the heterotrait-monotrait ratio (HTMT). Discriminant validity is established when the square root of AVE for each construct exceeds correlations with other constructs (Fornell & Larcker, 1981). Table 2 shows that this criterion was met. Additionally, HTMT values remained below the suggested threshold of 0.90 (Teo et al., 2008), confirming discriminant validity.

Table 1. First-order
internal CR, CA,
AVE, and Loadings

Construct	Example Item	Loading Range	CR	CA	AVE
AA	AA1-4	0.663–0.782	0.831	0.729	0.553
REPU	REPU1-4	0.720–0.833	0.871	0.802	0.629
NAA	NAA1-8	0.626–0.881	0.922	0.902	0.599
ACCE	ACCE1-4	0.673–0.788	0.820	0.707	0.533
SL	SL1-4	0.675–0.918	0.918	0.877	0.738
ALTR	ALTR1-2	0.950	0.949	0.893	0.903
COUR	COUR1-2	0.855	0.845	0.632	0.731
CV	CV1-2	0.936	0.934	0.860	0.877

Table 2. First-order
Discrimination
Validity–Correlation
of Latent Variables
with Square Root of
AVEs

Items	AA	REPU	NAA	ACCE	SL	ALTR	COUR	CV
AA	0.744							
REPU	0.615	0.793						
NAA	0.449	0.527	0.774					
ACCE	0.526	0.587	0.552	0.73				
SL	0.471	0.723	0.448	0.47	0.859			
ALTR	0.301	0.288	0.201	0.372	0.362	0.95		
COUR	0.213	0.238	0.307	0.369	0.25	0.454	0.855	
CV	0.173	0.263	0.168	0.323	0.321	0.353	0.207	0.936

**4.2. Measurement Model—Assessment of Second-Order Reflective
Constructs**

The second-order constructs were validated throughout the measurement model evaluation. The constructs of UEQ and ACB were evaluated for reliability and convergent validity. Furthermore, as recommended by Sarstedt et al. (2019), the second-order construct was assessed for discriminant validity against various lower-order constructs.

Internal consistency was assessed using CA and CR. All coefficients surpassed 0.60 (Hair et al., 2017; Kock, 2022; Nunnally, 1994) SL (CR = 0.918, CA = 0.877), UEQ (CR = 0.885, CA = 0.826), and ACB (CR = 0.738, CA = 0.658). Convergent validity was evaluated through factor loadings (see Table 3) and AVE. All loadings exceeded 0.50 with p values ≤ 0.05 (Hair et al., 2019; Hulland, 1999), and all AVE values were ≥ 0.50 (SL=0.738,UEQ=0.605,ACB=0.562), indicating adequate convergent validity (Fornell & Larcker, 1981).

Discriminant validity was evaluated through AVE and HTMT. Following Fornell & Larcker (1981), Table 4 shows the square root of AVE for each construct exceeded correlations with other constructs. HTMT values remained below Kline (2011) stringent 0.85 threshold, confirming discriminant validity.

Construct	Item	Loading
SL	SL1	0.918
	SL2	0.906
	SL3	0.913
	SL4	0.675
UEQ	AA	0.798
	REPU	0.847
	NAA	0.773
	ACCE	0.824
ACB	ALTR	0.833
	COUR	0.749
	CV	0.655

Table 3. Second-order Loadings

Items	SL	UEQ	ACB
SL	0.859		
UEQ	0.654	0.811	
ACB	0.415	0.444	0.749

Table 4. Second-order Discrimination Validity-Correlation of Latent Variables with Square Root of AVEs

Note. Square roots of average variances extracted (AVE) are shown on diagonal.

4.3. Structural Model/s Assessment

The structural model path coefficient (β) and path significance (p-value) were analysed to clarify relationships among model components. Table 5 displays hypothesis testing outcomes, including effect sizes (f^2), where values of 0.35, 0.15, and 0.02 indicate significant, medium, and modest impacts, respectively (Cohen, 2013). From Table 5, we can draw the following conclusions:

- UEQ has a significant effect on SL at a p-value < 0.01 and $\beta = 0.66$. Thus, hypothesis H1 is supported.
- SL has a significant effect on ACB at a p-value < 0.01 and $\beta = 0.235$. Thus, hypothesis H2 is supported.
- UEQ has a significant effect on ACB at a p-value < 0.01 and $\beta = 0.295$. Thus, hypothesis H3 is supported.
- When checking the significance of the indirect effect, we notice that the indirect relationship between UEQ and ACB is significant ($\beta = 0.155$, $p < 0.01$); therefore, SL mediates the relationship between UEQ and ACB. Thus, hypothesis H4 is supported.

Table 5. Hypothesis
Testing

Hypothesis	Path	Path coefficient (β)	p-value	Effect size (f^2)	Results
H1	UEQ-SL	0.66	$P < 0.01$	0.435	Supported
H2	SL-ACB	0.235	$P < 0.01$	0.099	Supported
H3	UEQ-ACB	0.295	$P < 0.01$	0.131	Supported
H4	Mediation	0.155	$P < 0.01$	0.069	Supported

The global model fit and quality indices indicate appropriate model-data fit (see Table 6). Although the SRMR value slightly exceeds the threshold (0.101, acceptable if ≤ 0.1), it remains very close to the acceptable boundary. Other fit and quality indices demonstrated satisfactory results, confirming overall acceptable model-data fit.

Index	Value	Interpretation
Average path coefficient (APC)	0.397	$p < 0.001$
Average R-squared (ARS)	0.333	$p < 0.001$
Average adjusted R-squared (AARS)	0.327	$p < 0.001$
Average block VIF (AVIF)	1.682	acceptable if ≤ 5 , ideally ≤ 3.3
Average full collinearity VIF (AFVIF)	1.655	acceptable if ≤ 5 , ideally ≤ 3.3
Tenenhous GoF (GoF)	0.466	small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36
Simpson's paradox ratio (SPR)	1	acceptable if ≥ 0.7 , ideally = 1
R-squared contribution ratio (RSCR)	1	acceptable if ≥ 0.9 , ideally = 1
Statistical suppression ratio (SSR)	1	acceptable if ≥ 0.7
Nonlinear bivariate causality direction ratio (NLBCDR)	1	acceptable if ≥ 0.7
Standardized root mean squared residual (SRMR)	0.101	acceptable if ≤ 0.1
Standardized mean absolute residual (SMAR)	0.083	acceptable ≤ 0.1
Standardized chi-squared with 54 degrees of freedom (SChS)	1.757	$p < 0.001$
Standardized threshold difference count ratio (STDCR)	0.982	acceptable if ≥ 0.7 , ideally = 1
Standardized threshold difference sum ratio (STDSR)	0.948	acceptable if ≥ 0.7 , ideally = 1

Table 6. Model fit
and quality indices

In this study, the R^2 (coefficient of determination) values were 0.435 for SL and 0.231 for ACB. The values measured for Stone-Geisser (Q^2) in this analysis were 0.439 for SL and 0.237 for ACB, which can be considered satisfactory (if greater than 0).

5. Discussion

This study verified a research model investigating the effect of UEQ on SL and ACB among business students in Poland's higher education environment. The results confirm relationships between UEQ and SL (H1), UEQ and ACB (H2), and SL and ACB (H3). Additionally, SL partially mediates the relationship between UEQ and ACB, supporting hypothesis H4.

The findings show a substantial positive relationship between UEQ and SL, implying that students who perceive higher quality in educational services are more loyal. Similarly, SL has a positive relationship with ACB, implying that more loyal students are more likely to engage in behaviours that benefit the academic community. A direct positive relationship was also discovered between UEQ and ACB, highlighting the significance of perceived service quality in moulding students' citizenship-like participation.

These findings highlight the significance of UEQ when treating students as both consumers and members of the academic community. UEQ is linked to both ACB and SL, and SL helps to mediate the interaction between the two. This shows that students' evaluations of educational quality may be linked to their citizenship behaviours, both directly and indirectly via SL.

5.1. Theoretical Implications

Given the limited number of studies examining students as active community participants, this study addresses critical research gaps. Unlike previous studies viewing students merely as service recipients (Ali et al., 2016; Angell et al., 2008; Annamdevula & Bellamkonda, 2016; Hwang & Choi, 2019; Narang, 2012; Sharif & Sidi Lemine, 2021; Sultan & Wong, 2013), our findings demonstrate stronger outcomes when recognising students' dual role as both customers and engaged community members.

Our findings confirm several key relationships: the positive link between UEQ and SL aligns with prior research (Ali et al., 2016; Annamdevula & Bellamkonda, 2016), but uniquely demonstrates this when students are viewed as community participants. Similarly, while the relationship between loyalty and citizenship behaviour parallels findings from employee and customer contexts (Bove et al., 2009; Zoghbi-Manrique-de-Lara et al., 2014) and student-as-customer research (Nagy & Marzouk, 2018), our study shows distinct manifestation when students are also recognised as active community members. Unlike previous studies treating students as customers (Sharif & Sidi Lemine, 2021), our study demonstrates the association between education quality and citizenship behaviour when viewing students as both community members and service recipients.

The identification of SL as a partial mediator contributes to both expectancy-disconfirmation and social exchange theories by demonstrating how reciprocal relationships work when students are viewed as community members. Unlike

traditional service relationships, education requires collaborative engagement beyond the customer-provider dynamic (Budd, 2017; Hennig-Thurau et al., 2001; Svensson & Wood, 2007). Education quality promotes citizenship behaviour both directly and through loyalty when institutions treat students as valued community participants.

Drawing on social exchange theory, students perceiving high-quality education develop deeper community involvement beyond transactional relationships, aligning with cognitive consistency theory predictions that positive institutional perceptions encourage community-building actions.

Our theoretical synthesis in the Polish higher education context provides a framework for understanding how UEQ fosters loyalty and citizenship behaviours when institutions recognise students' role as engaged community members. This understanding of viewing students as active participants rather than just customers strengthens institutional outcomes through genuine community engagement.

5.2. Practical Implications

Universities should move beyond customer service models to develop programmes that emphasise student agency and community participation (Hanken, 2011; Svensson & Wood, 2007). This means creating platforms for student-led initiatives, incorporating student perspectives in institutional decision-making, and recognising their contributions to the academic environment. Staff development should focus on facilitating students' engagement with the community as active members of the community, not just on providing services (Lee et al., 2023; Owusu-Agyeman & Moroeroe, 2022).

This community-centred approach enhances both educational quality and student outcomes. Our Polish higher education findings demonstrate that viewing students as committed participants rather than merely customers strengthens institutional effectiveness, providing a framework for universities to foster genuine academic communities.

These findings support social exchange theory (Blau, 2017) by demonstrating how reciprocal relationships go beyond traditional provider-customer dynamics. Treating students as valued community members promotes voluntary citizenship and increases loyalty via meaningful engagement. Universities should prioritise creating authentic academic communities where students may participate as active members. This strategy improves educational quality and SL while creating vibrant educational environments that benefit from students' spontaneous participation. These findings help educational policymakers at the institutional and governmental levels.

6. Conclusion

This study advances our understanding of relationships between UEQ and ACB in higher education, offering important theoretical and practical insights. By viewing students as both customers and community members, we reveal complex connections between education quality and citizenship behaviour through SL. Our findings highlight the significance of recognising students' dual roles in academic communities. Higher education differs from traditional service contexts by requiring active student participation (Kahu, 2013; Owusu-Agyeman, 2022). When institutions provide high-quality educational experiences while fostering community participation, voluntary citizenship behaviours emerge more naturally. Our research offers actionable insights for institutions seeking to enhance UEQ and student engagement in ACB. Moving beyond customer-service models to embrace students as active community members enables universities to create vibrant academic environments. This approach strengthens institutional communities while improving educational outcomes through enhanced SL and ACBs.

7. Limitations and Future Research

This study has several limitations affecting generalisability. Data was collected from business students at one Polish public university, predominantly undergraduates (73.9 %) and full-time students (78.2 %). While the sample size (N=165) met PLS-SEM requirements (Hair et al., 2011; Kock, 2022), the self-reporting nature may introduce common method bias, partially mitigated by collecting data across different academic years and periods (Podsakoff et al., 2003).

While this study considered students as both customers and community members, it did not examine how institutional cultures, or educational approaches might affect this dual role. The focus on business students limits generalisability to other academic disciplines.

Future research should investigate diverse institutional contexts, including different university types and cultural settings. Qualitative methods could provide deeper insights into student perceptions of their dual roles. Further studies should examine how institutional approaches to student engagement affect the relationship between education quality and citizenship behaviour, including varying pedagogical methods, institutional cultures, and quality assurance systems (Choong et al., 2020; DiPaola & Hoy, 2005; Iqbal et al., 2024; Somech & Oplatka, 2014). This would enhance understanding of how universities foster engaged citizenship while maintaining quality across delivery modes.

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